

GRADUATE

UNIVERSITY OF TORONTO ALUMNI



VARSITY 100: A VENERABLE QUIETNESS

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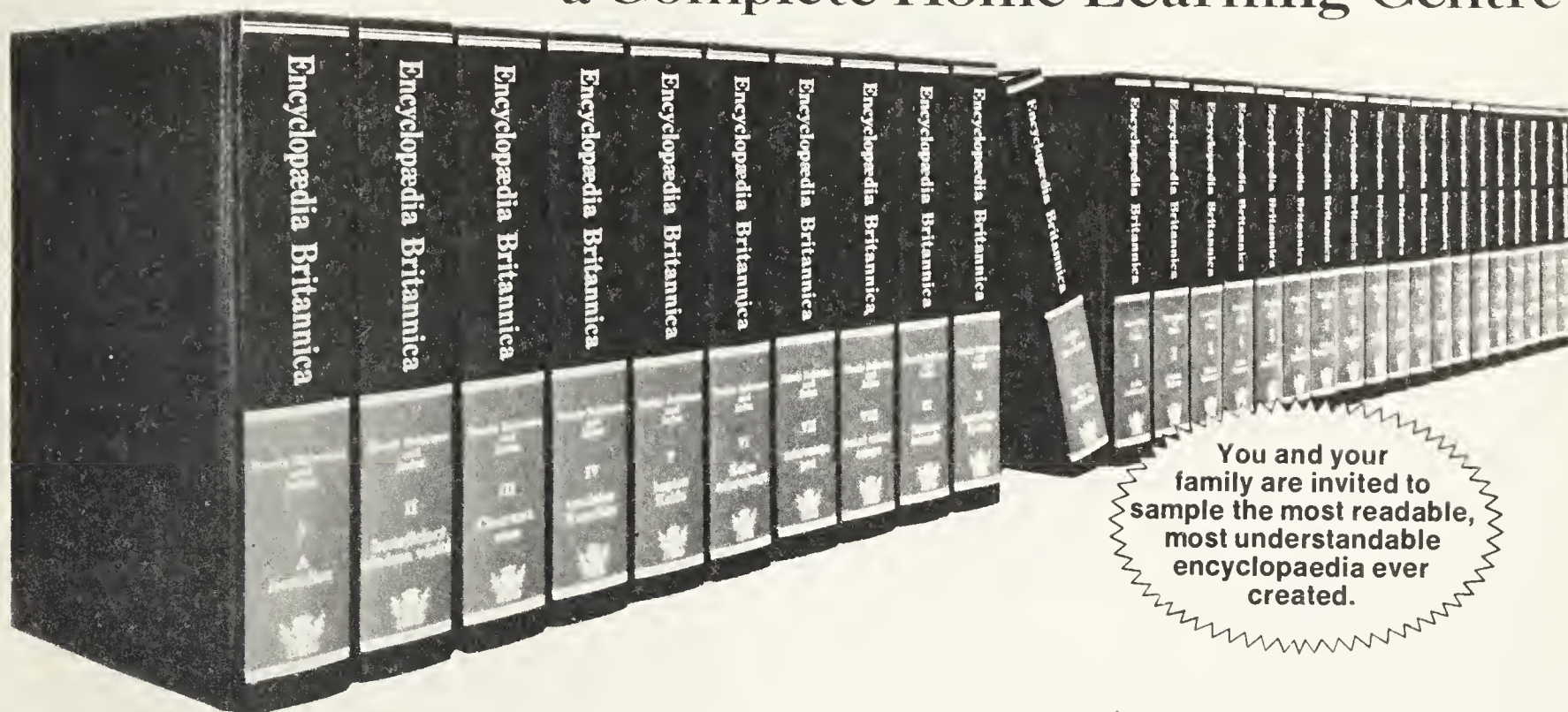
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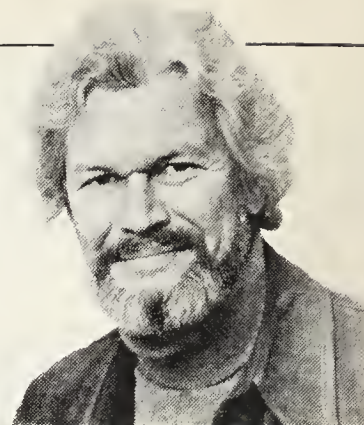
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LETTERS



Judging from the many telephone calls we received after the May/June issue of *The Graduate* was mailed, and the scores of letters you sent us, this slender but ambitious magazine which arrives in your mailbox is well-received.

The community of 125,000 University of Toronto alumni who receive *The Graduate* is scattered throughout the world and it is exciting to receive letters from Australia and Kenya and Europe and India, chiding us for a misspelling, expressing delight with the inclusion of a cryptic crossword, adding a historical footnote or simply saying hello, as in the case of Bertha King (OT2) whose letter appears on page 25.

In this issue writer Pamela Cornell pays tribute to the *Varsity*, now entering its 100th year of publication, recapturing through interviews with former editors the turbulent and sometimes exciting periods of its history.

Ian Montagues recalls the legend of Taddle Creek, the once romantic river which flowed through the campus and was forced underground where it trickles still. Geoffrey Hancock, editor of *Canadian Fiction Magazine*, explores the mind of Canada's greatest mathematician and finds a geometric sense of humour, a man who may think in abstruse equations but who expresses himself with literary quotations and musical analogies. Professor H.S.M. Coxeter has also dabbled enthusiastically in the absurd, collaborating with the Dutch master of the plausibly impossible, artist M.C. Escher. Indeed, Coxeter worked out the mathematics for some of Escher's works. It's fun to think of one of the world's great mathematicians working hand in hand with an artist who delights in making water flow uphill, who confuses ceilings, walls and floors, and whose designs confound the human eye, changing shape and form as though in motion.

Here, too, we approach the frontier of human intellect: the battleground of chess and computers. Zvonko Vranesic, an international chess master and professor of computer science, reveals that the so-called infinite capacity of computer memory chips is finite indeed when it comes to chess, and that computers *can* be confounded.

In future issues we plan to find out what our medical researchers are doing about relief of arthritis, what real progress has been made in the fight against cancer, and we'll explore the moral aspects of scientific research: Einstein's dilemma. Who, if anyone, should watch over men and women who are experimenting with enzymes that can affect a human cell? How does a researcher rationalize paying volunteers \$3.60 an hour to chainsmoke cigarettes?

We'll be asking resident economists whether we should buy land, gold or deutschemarks to hedge against inflation, and political scientists whether Joe Clark has any real chance to slow inflation down.

In our next issue we'll be talking with Jacques Berger, professor of zoology who is beginning a three-year research project which may contribute to a means of cleaning up massive worldwide oil spills. Berger has discovered certain

bacteria which devour and partly emulsify oil, and which are then devoured by certain protozoa. Trouble is that these protozoa then die, dropping tar balls on the ocean floor. He hopes to discover some beasties that will pass oil into the food chain for natural dispersal. Also in the November/December issue is a commentary on four major reports that have emerged from various committees within the past year and which will effect profound changes in both high school and university curricula.

In this issue, on page 21, *The Graduate* Test No. 2 appears, along with the names of the 270-some-odd readers who correctly solved Test No. 1 and who responded with great enthusiasm (even those who found it too easy). Test No. 2 is tougher and clearly the cryptic is here to stay.

Ah, you noticed, did you? Thought you might. We've been blowing our own horn rather blatantly, telling you about all the wonderful things we're doing for you and what we plan in future. Of course there's a reason.

We have our stated goal, to produce a magazine which will evolve into a publication of excellence and enjoyment, a forum for debate and a clearing house for matters of research and intellectual achievements and involvements — a magazine for grown-ups.

It costs a good deal of money to do this, and while costs are rising funds are tight throughout the University. Rather than going to Governing Council and pleading piteously for more, we decided to try to earn our own way. Academic needs come first. And so we began to sell advertising space. That helps, but you can, too.

As you browse through this issue of *The Graduate*, and as you find articles and items of interest, material that you might not find elsewhere, why not consider becoming a voluntary subscriber?

As a U of T graduate you receive the magazine five times a year, free of charge, and you will continue to receive it as long as we know your address.

But you can participate in our quest for a journal of excellence by giving a voluntary subscription. We suggest \$10 a year. We'll accept more, of course, and we'll accept less, and regrettably we cannot make it tax-deductible. But every cent that we receive will be spent directly on improvement of the magazine.

The Graduate is unique: it is already your magazine. You can help to make it better. We've included a stamped, addressed envelope to make it as convenient as possible.

And thanks.

Editor

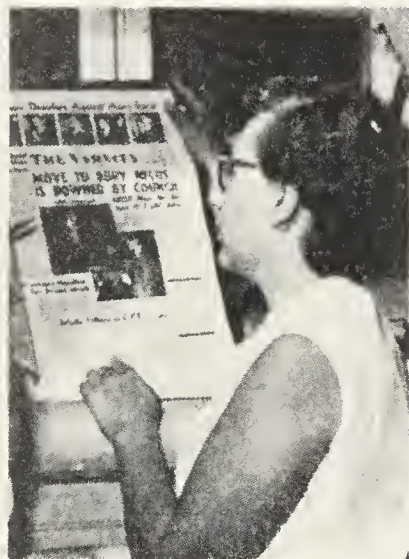
CONTENTS

OUR 100-YEAR-OLD VARSITY IS BECOMING RESPECTABLE

By Pamela Cornell

— How dull. The past was anything but, say the campus paper's former editors — energetic, articulate, perceptive, opinionated — the dragon slayers of St. George, those knights of *The Varsity* press.

Page 6



THE MANY SIDES OF DONALD COXETER

By Geoffrey Hancock. A mathematician who expresses himself in literary quotations and musical analogies delights us with his world. Page 10

BEST GAME IN TOWN

By Milt Dunnell. It's spelled Blues. Page 30

LETTERS

Historical footnotes, bouquets and brickbats. Page 23

EVENTS

Nuclear safety, and where to cheer the Blues. Page 31



TADDLE TALE

By Ian Montagnes

The old stream, long hidden from sight, is seen in memory as this tale of the Taddle traces its course and history through the University's years and Toronto's lands.

Page 13

COMPUTERS NEVER LEARN

By Chris Johnson. Zvonko Vranesic reveals how you can beat your computer at chess. Page 16

THE GRADUATE TEST NO. 2

By Chris Johnson. Tougher than No. 1. Page 21

MEMORANDUM

Writing — a lost art? Page 22

ALUMNIANA

News from all points of the alumni compass. Page 26

GRADUATE

Editor: John Aitken

Managing Editor: Margaret MacAulay

Staff Writer: Pamela Cornell

Design: Young, Murray & Partners

Layout & Typesetting: Chris Johnson

Advisory Board:

Rev. Peter O. Scargall, B.A. (McMaster), L.Th., *chairman*;
Joyce Forster, B.A., Prof. Paul Fox, B.A., M.A., Ph.D. (London);
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E.B.M. Pinnington, B.A.,

director, Department of Alumni Affairs;

Elizabeth Wilson, B.A.,

director, Department of Information Services.

Advertising Representatives: Alumni Media Ltd.

124 Ava Road, Toronto, Ontario M6C 1W1.

Telephone (416) 781-6957.

For address changes contact:

Alumni Affairs, 47 Willcocks Street,
University of Toronto, Toronto,
Ontario M5S 1A1. Telephone (416) 978-2139.

Address all other correspondence to:

Department of Information Services, 45 Willcocks Street,
University of Toronto, Toronto, Ontario M5S 1A1.
Telephone (416) 978-2104.

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OUR 100-YEAR-OLD VARSITY IS BECOMING RESPECTABLE

How dull

By Pamela Cornell

They were the University's most energetic, articulate, perceptive, and opinionated undergraduates. They'd stay up all night doing what mattered most to them, then set off for the day's classes. They belonged to a fraternity that demanded much but offered tremendous satisfaction.

Where are they now? Almost everyone knows because their names read like a Who's Who of Canadian journalism, entertainment, politics, and scholarship — names like Peter Gzowski, Wayne and Shuster, Michael Cassidy, and C.P. Stacey. Their common bond? They're ex-*Varsity* editors.

It's been 99 years since the first issue of *The Varsity* was trundled by handcart from printer to horse-drawn trolley for delivery to the St. George campus. The paper enters its centennial year October 20. But though the past has been mostly rosy, there are ominous clouds on the horizon.

"In its 100th year, *The Varsity* will be the number two paper on campus, and deservedly so," says Steve Petranik, a founding editor of the rival *newspaper*, a weekly, now

entering its second year. "Since the early 70s, *The Varsity* has been offering simplistic polemics, rather than careful analysis of the issues. It's been an embarrassment to the University. Students don't need one boring faction of the authoritarian 'left' telling them what they should think. If they have the facts, they can make their own choices."

The newspaper has been an independent publication, relying entirely on advertising revenue to cover its costs. Since 1923, *The Varsity* has been heavily subsidized by the Students' Administrative Council (SAC). In 1978-79 the grant was \$44,000; this year's is \$42,000. Now *The Varsity* is severing its ties with SAC and incorporating on its own, though students will continue to be levied \$1.25 each for its operation.

But then tension is a tradition between SAC and its reluctant ward. Three years ago, council members were incensed because the paper had overspent its budget by \$10,000, leaving SAC to make good the difference. Last year, *Varsity* staffers were enraged because SAC prevented them from reprinting the controversial *Body Politic* article "Men Loving Boys Loving Men". The original had resulted in obscenity charges against *Body Politic* publishers and the case was still before the courts when *Varsity* editor George Cook had the article typeset and ready to go.

If this year's editor, Roberta Clare, takes a tough stand, it's more likely to be over an on-campus issue.

"The main role of the student press is to serve as a watchdog on the administration and that needn't imply an adversary position as long as our coverage is fair and we avoid personal references. We're addressing a uniquely intelligent audience so we don't have to go for popularized journalism."

Clare sees herself as a team person — working side by side with reporters — not as an authoritarian-style editor.

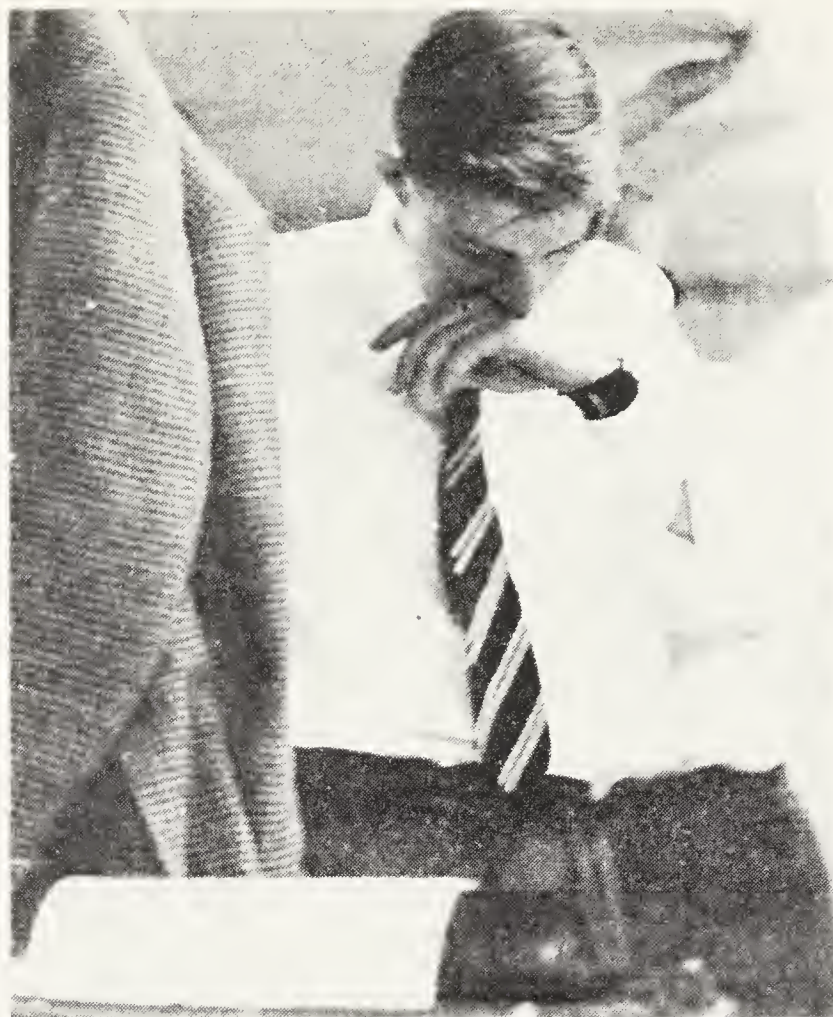
The Varsity team consists of about 140 volunteers and 10 salaried staff. Turnout at *The Varsity's* annual spring meeting was 51, including a reporter who asked a SAC rep who Arthur Kruger was. (He's the outspoken dean of arts and science, the University's largest faculty.)

The poor old *Varsity* is definitely showing signs of an energy crisis. There was a time when it seemed to have an unending supply of human dynamos — for who but the most dynamic individual could survive the rigours of being a full-time student *and* editor-in-chief of a paper that came out five days a week? The annual honorarium of a few hundred dollars barely covered the cost of coffee and aspirin. High-powered editors attract high-powered staff. Peter Gzowski's most sensitive profile writer, Cathie Breslin, shot to the upper reaches of feature writing in New York City. His senior photographer, Bill Eptridge, went on to become one of the best at *Life* magazine. Now that a full-time editor is paid about \$150 a week to produce a triweekly *Varsity*, that old momentum seems to be missing.

Comedian Johnny Wayne, a founding member of the nationwide Canadian University Press (CUP), recalls his days as news editor in the late 30s.

"Walking into *The Varsity* office was a pleasure. The staff had a lot of imagination, drive, enthusiasm. Typewriters were always pounding. It was a well-run little paper. We got a superb basic training there — doing make-up, running proofs, meeting deadlines.

"Publishing three times a week isn't enough. More than ever, U of T needs a daily newspaper covering every facet of campus life to give students in that giant parking lot a feeling of belonging to something worthwhile."



UNIVERSITY OF TORONTO ARCHIVES — TORONTONENSIS

Upper left: Wendy Michener with Bob Brown and Mike Pengelly, 1956

Lower Left: Peter Gzowski and Michael Cassidy, 1956

Upper Right: Doug Marshall, 1959



The Varsity didn't start as a daily, or even as a newspaper. From 1880 to the early 90s, it was a weekly literary journal featuring essays, poems, and gossipy tidbits from Oxbridge and the Ivy League colleges. Though many of the paper's early front-page editorials called for the admission of women to University College, it was 12 years before there were any women writing for *The Varsity*.

The early 90s was a period of unrest, with much of the English-speaking world rebelling against Victorianism. Socialism was popular. George Bernard Shaw was attacking the establishment. And university students were passively or actively opposed to authority.

The Varsity reflected this mood when it charged the administration with nepotism for appointing the chancellor's son-in-law, George Wrong, to an English history lectureship at an annual salary of \$1,500 instead of the usual beginning rate of \$800.

With discord rife over that issue, the Thompson-Jury incident occurred. The Political Science Club invited two labour leaders, journalist Phillips Thompson and Liberal

politician Alfred Jury, to speak. The University council, objecting to certain religious and political beliefs of the two, ruled that the program be revised by Professor James Mavor, political science department chairman (and grandfather of Mavor Moore, now Canada Council head).

The Varsity promptly attacked Mavor and branded the councillors "bigots and persecutors". The club was denied use of the Students' Union but hired a private hall for the speeches which were exceptionally well attended.

Then Professor William Dale, who'd written a letter critical of the University administration, was fired after the letter appeared on the front page of a downtown daily. A fellow in Latin, F.B.R. Hellems, resigned in protest and *The Varsity* ran a black-ruled "mourning" issue.

The Ontario government set up a Royal Commission after 1,200 students signed a petition calling for an investigation into the affairs of the University. During the hearings, *Varsity* editor James A. Tucker was cross-examined for hours by the chancellor's lawyer-brother and ended up being expelled. The Literary and Scientific Society, however, paid his way to Stanford University.

In contrast, the early years of the 20th century were tame. By 1913, the paper was coming out triweekly. One editorial debated whether or not an undergraduate should carry a cane, while another termed "incomprehensible" the federal government's offer of a drill hall for officers' training. (War was declared a few months later.)

The first annual zany issue of *The Varsity* came out in 1921. Henceforth known as the Jazz Issue, it was eagerly anticipated until 1937 when a particularly suggestive batch

of articles resulted in an all-time ban. (The material was genteel compared to the raw, sexual language and imagery that characterized "serious" editorials in the late 60s.) In 1923, the almost daily humour column, "Champus Cat", first appeared.

That was the year Colonel Charles P. Stacey, eminent military historian and distinguished emeritus history professor, became a rookie reporter, winding up as editor-in-chief in 1927. His first assignment was covering the award of Canada's first Nobel prize to Frederick Banting and James MacLeod for the discovery of insulin.

"There was a lot of bad feeling about MacLeod sharing the prize instead of Charlie Best. I'll never forget how shocked I was to encounter so much violent hostility and backbiting among such distinguished men. Banting was thinking of making a statement through *The Varsity* then changed his mind. I missed my scoop but I think he made the right decision.

"University society was self-centred then. It was a period of prosperity. Social issues didn't present themselves."

Times weren't so tranquil two years later when *Varsity* editor Leonard Ryan was suspended over an editorial on petting. The piece was written by Helen Allen, whose "Today's Child" column, now 15 years old, appears in newspapers throughout the province.

Hardly daring by today's standards, "To Pet or Not to Pet" provoked one of the more interesting interludes in *Varsity* history because when Ryan was suspended his entire staff walked out in support. *The Telegram* offered them a daily half-page and under an altered name — *The Adversity* — the old staffers sparred verbally with their on-campus replacements until exams took everybody's mind off their differences.

Then came the stock market crash and the Depression. For Col. Stacey, the symbol of that period was the Park Plaza Hotel, which stood unfinished for 10 years. "You could see it for miles . . . a monument to dead hopes."

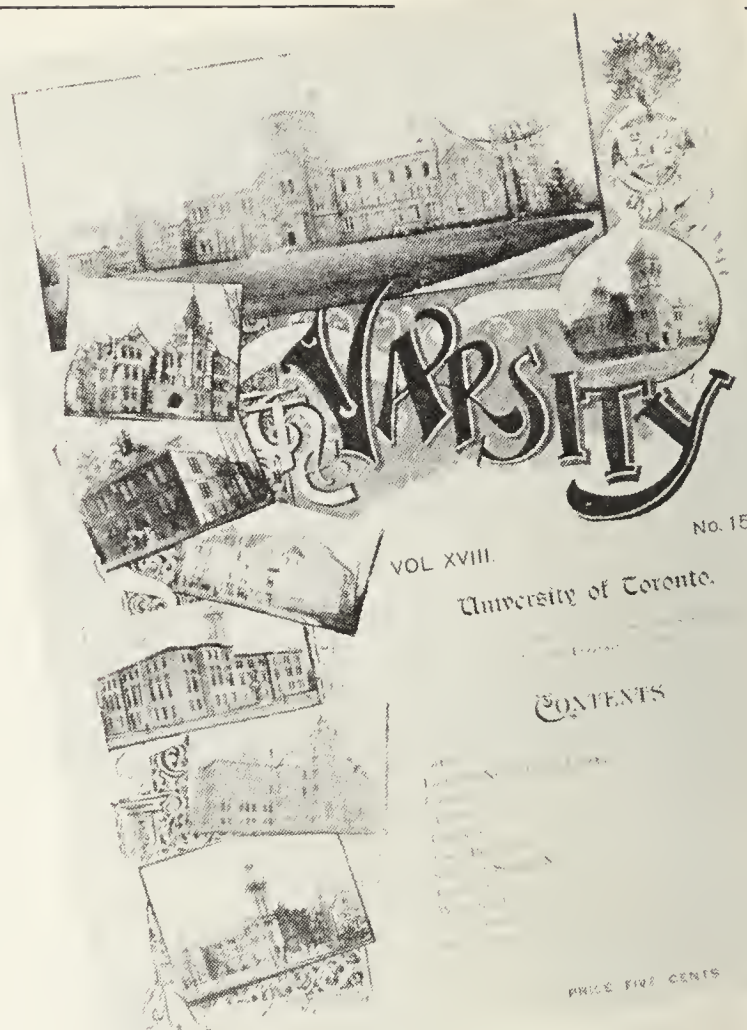
By the time Frank Shuster and his buddy, Lou Weingarten (later Johnny Wayne), joined *The Varsity* in the midst of the Depression and just before the war, readers must have been desperate for comic relief. Writing under such pseudonyms as Hank Rooster, Oomlauf Wiregarters, George Bernard Shopsowitz, and G.B. Pshaw, they were the most frequent contributors to the Champus Cat in their time. Yet they swear the funniest man at *The Varsity* was John Kitchener Rooke, otherwise known as The Raven. He later went to work for the National Film Board, the CBC, CFTO, and now runs his own Toronto-based company, Canada Communications Arts, specializing in writing and film production.

"Rooke wrote nonsense verse better than Edward Lear," insists Shuster.

With the end of the Second World War, the campus was inundated by a wave of veterans. Among them was Norman De Poe, married and with two sons. Now retired, the longtime CBC correspondent recalls putting *Varsity* copy and layouts on the 1 a.m. bus to Oshawa where 17,500 copies were printed five nights a week by the *Times Gazette*.

"There wasn't time for social causes in those days. We were too busy working like hell to get our degrees and see what this peacetime racket was like. But I suppose you could say we were against war, in favour of democracy, and dead set against the man-eating shark. Oh and I seem to recall once writing an editorial denouncing sociological jargon."

Peter C. Newman, now editor of *Maclean's* and author of



Above: The cover in 1899
Opposite: the last Jazz Issue, 1937
The front page 1978-79

numerous books on powerful Canadians, recalls being awed by veterans like De Poe. Newman was fresh out of high school where he'd just learned how to speak English, his parents having only recently emigrated from Europe.

In 1948, he was a freshman in the engineering school at Ajax where classes were held in what had been a munitions factory. There he served as *The Varsity's* Ajax editor, submitting two or three articles a week.

Switching to arts on the St. George campus in his second year, Newman became just another *Varsity* reporter.

"I went from high up to nowhere on the masthead and that didn't appeal to me. So I spent most of that year in the Hart House library, systematically reading all the books, from A to Z. It was the best year of my life."

The late Wendy Michener, *Globe & Mail* film critic until her death 12 years ago, caused a flurry in 1954. As *Varsity* co-editor-in-chief, she wrote an editorial castigating men for being insensitive to women's menstrual moods. Though the piece was no racier than a Midol ad, Michener was reprimanded both by the University administration and by the SAC executive. Today her editorial wouldn't rate a second glance. Perhaps that's why her successor, Peter Gzowski, spices up the story when he tells it by changing the headline to "It's a Bloody Shame".

Gzowski had already been out of school working for a "real" paper in Timmins, covering forest fires and Lions' Club dinner speakers, when he took over as editor.

"Nobody denounced *The Varsity* in the 50s. It was a lively, readable paper that covered the campus news. What we were writing about might not have been very important

The Varsity

The Undergraduate Newspaper

EDITOR PURCHASES TWO TORONTO EVENING NEWSPAPERS

NEWS OF THE WORLD IN BRIEF

Paris, France. The French government has announced that it will not accept the offer of a general amnesty for the Algerian FLN fighters who have been in the custody of the French government since the end of the Algerian war.

Toronto, Ont. The Ontario government has announced that it will not accept the offer of a general amnesty for the Algerian FLN fighters who have been in the custody of the French government since the end of the Algerian war.

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We Dread a Bad Misquote
But Gloat is Sure the Goat

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THE Varsity

TORONTO Vol. 99, No. 62, Mon. Mar. 19, 1979



Are students out of touch?

but we were developing skills that could be applied to important things later on. "It was a great apprenticeship — learning how to observe, doubt, question, entertain, and inform. We needed that opportunity to try and to fail, so we could understand why some things don't work."

Next to pick up the editorial reins was Michael Cassidy, now leader of Ontario's New Democratic Party.

"The Varsity was left-wing for the times but it was strictly sandbox stuff . . . you know . . . flaming editorials on the shame of the city's slums. We actually caused a commotion by endorsing the CCF in model parliament.

"There was a lot of debate about religion which shows how innocent we were in those days. And though sex was undoubtedly practised to some extent, it wasn't discussed much. Residences were segregated and closely watched. Panty raids had subsided and no one had found a substitute.

"The Hungarian revolution in the fall of 56 really brought the campus to life and The Varsity was instrumental in organizing mass demonstrations.

"We were struggling for a social conscience — that was the beginning of the civil rights movement in the US and the nuclear disarmament marches in England — but essentially our questioning was pretty channelled and docile. We had no idea that 10 years later, the very nature and relevance of the university would be challenged."

Cassidy was hardly docile in his notorious "good riddance" editorial on the imminent departure of University President Sidney Smith who had just accepted Diefenbaker's invitation to be Minister of External Affairs.



President-elect
David Jones and
SAC President
Brian Hill
Interview p. 4

Grading policy is petitioned

By ANNE DOUGLAS

Students were so discontented with the evaluation of their final course in the fall term that they submitted a petition to the Dean of the Faculty of Arts and Science. In the evaluation of the final exam marks, a different formula than the one stated by one of the instructors was used. The students were not informed of the change.

A petition, signed by approximately 100 students, was submitted to the Dean of the Faculty of Arts and Science. The petition stated that the students were not informed of the change in the evaluation of their final exam marks. The students were not informed of the change in the evaluation of their final exam marks.

That singular lack of tact almost resulted in firing but Cassidy hung on, to be replaced the following year by Douglas Marshall, now editor of *Books in Canada*. "We were constantly trying to stir up issues but apathy was the affliction of the day," Marshall says. "Eisenhower had just been re-elected and most students were content that, as soon as they graduated, they would take their place in the establishment."

A dramatically different mood prevailed in the Kennedy era; a mood that fostered idealism and an orderly brand of activism. In a series called "Canada in Crisis", *The Varsity* ran analyses of the French-English problem. The articles were directed at generating support for a Queen's Park march to urge greater sympathy for French-Canadian concerns. The march was the largest in U of T's history and the press came out in force. But other than a 30-second spot on the CBC's 1 p.m. news, the event received no coverage. The reason? It took place on November 23, 1963.

James Laxer, now host of a TV-Ontario public affairs show, was *The Varsity* features editor who organized the big event that was doomed to be pre-empted by an even bigger event — the Kennedy assassination. "It would probably be impossible to rally so much support from students now," Laxer says, "but those were the days before the sectarian left. We could still discuss ideas then without being denounced for not being radical enough. Now it seems a much more modest institution where concern is focused on cutbacks and job security."

Orderly protest marches gradually gave way to violent confrontations between students and administrators. *Varsity* editorials in the late 60s were usually diatribes, abusive and shrill. At the same time, though, the staff could take credit for an exuberant approach to layout, with lots of strong pix and illustrations, and for a fairly respectable arts review section. Quality was variable in the feature articles, typically on topics like Vietnam, the grape boycott, Canadian Indians, urban renewal, spiritual uses of LSD, early childhood education, ecology, and overpopulation.

In the midst of all that earnestness and outrage, *The Varsity* didn't neglect to document the selection of Vic-coded Barbara Reid as Miss U of T. She was crowned during homecoming ceremonies and the paper didn't make a single snide remark.

Miss U of T would probably have been denounced as a running dog lackey of the bourgeoisie had her coronation been written up in *The Varsity* of the early 70s. By then, Maoists, Trotskyites, Marxists, Leninists, and other dogmatic lefties were vying to fill the editorial pages with their respective catechisms. Faced with interminable, turgid dissertations on obscure ideologies, most students stopped reading the paper and would-be career journalists departed in disgust.

Can *The Varsity* find its way back into the hearts and reading habits of its public? Will that time-honoured journal succumb to the vigour of the upstart newspaper? Or will competition only spur the veteran on to new realms of excellence?

Roberta Clare outlines her plans: "We want to offer more intensive coverage of campus affairs and make more extensive use of photographs. And we'll be stepping up our investigative reporting."

A solemn declaration. But perhaps in a few years, Clare will share the skeptical viewpoint of one-time editor Doug Marshall: "*The Varsity* can take itself far too seriously unless it remembers that it's just an extremely complex and sophisticated instructional toy."

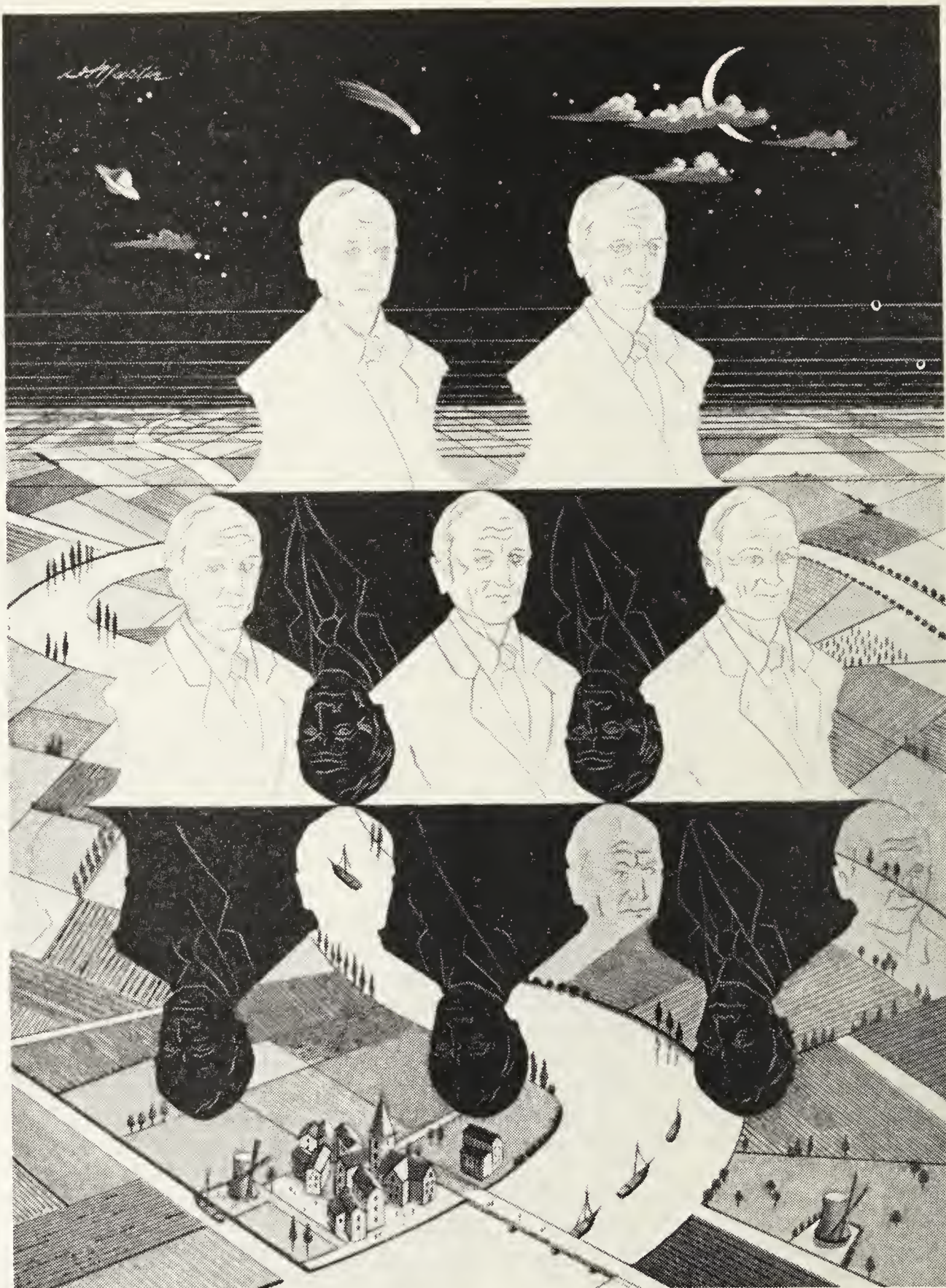


ILLUSTRATION BY DOUG MARTIN

THE MANY SIDES OF DONALD COXETER

By Geoff Hancock

He is a spare, gentle man, quiet and white-haired. At 72, Harold Scott MacDonald Coxeter, Canada's most distinguished mathematician and one of North America's outstanding geometers, has a precise self-image: "I'm someone who tries to find out mathematical truths, and I enjoy doing it."

In that simple statement, however, are hidden complexities. For Coxeter, mathematics is an art that extends infinitely into all the arts, and hence, into life itself. In his own books on geometry, the calculations and equations are liberally adorned with quotations from Wordsworth, Shakespeare, Shaw, Chesterton, and

Whitehead. He refers constantly to painting, literature, and natural objects like honeycombs, froth, and sponges. His studies of perspective and mirrors influenced his friend, Dutch artist M.C. Escher. Among his many papers is "Music and Mathematics", a complex comparison of what Coxeter sees as similar arts: both abstract, but precise; both expressible in a universal notation understood by men and women around the globe. The paper includes criticism of an awkward line in John Keats' "Ode to a Grecian Urn" and a comparison of the form of a Beethoven sonata with Pythagoras's proof of the mathematical theorem that the square root of two is irrational.

Coxeter continues the comparison into his own work. The book he considers his best, with the formidable title *Regular Complex Polytopes*, is, he says, "constructed like a Bruckner symphony, with crescendos and climaxes, little foretastes of pleasure to come—the geometric, algebraic, and group-theoretic aspects of the subject are interwoven like different sections of the orchestra".

Indeed, at one time, Coxeter wanted to be a musician and composer. With songs, piano pieces, a string quartet, and a prelude and fugue behind him, as well as incidental music for G.K. Chesterton's play *Magic*, young Coxeter seemed headed for a career in London's musical circles. But his mother showed some of his compositions to composers Gustav Holst and C.V. Stanford. They said: "Educate him first!"

Though he still plays Schubert and Chopin on the piano—in private, he quickly adds—and listens constantly to his favourite composer Bruckner ("Mahler was always seeking God; Bruckner found Him" he remarks, quoting Bruno Walter), Coxeter has spent his life doing what he enjoys most. He analyzes geometric objects such as cubes, pyramids, and spheres.

Or octagons, like stop signs. Or dodecagons, like the Canadian nickel. Or unbelievably complex shapes like the 59 icosahedra or the "great grand stellated 120-cell". He speaks reverently of geometry and groups, of symmetry, patterns, packings, and regular solids.

But what exactly does Coxeter *do*?

I could be bounded in a nutshell and count myself a king of infinite space . . .

—Hamlet, II, ii

The stuff of Coxeter's working thought and daydreams basically involves geometric shapes that cannot exist in the real world because they are too complicated to construct. So a different world has to be invented. Paradoxically, these imaginary figures, such as the 16 regular polytopes in four dimensions or their complex brethren, can be portrayed to some extent in real drawings.

These can be drawn with an incremental plotter—a computer-like instrument that moves a pen in several directions at once. Amazingly enough, some of the most complex designs are better drawn freehand—with a pen and ruler—by nerveless men with steady hands who could count among the world's great counterfeiters. Freehand is the only way to ascertain accuracy with such fine lines, Coxeter says.

Coxeter's own explanation of his work is laced with the stratospheric jargon of his trade. "The development of geometry is historically related to the development of algebra. The natural numbers 1, 2, 3, . . . lead to minus numbers, fractions, and other 'real' numbers when we try to solve equations such as $x + 1 = 0$, $2x = 1$ and $x^2 = -1$.

Different geometries arise when different kinds of numbers are used as coordinates.

"I discovered one example of a regular complex polytope. Geoffrey Shephard made a complete classification of such imaginary figures and wrote his PhD dissertation on them. (I was the external examiner.) Much later I developed a systematic construction for them and this led to a whole book."

A polytope, he explains, is an object of any number of dimensions. In two dimensions we have a polygon, such as a square; in three, a polyhedron, such as a cube; and many polyhedra fit together to make a polytope, which exists in any number of dimensions. Each bounding cell of a four-dimensional polytope is a polyhedron, each interface between two neighbouring cells, a polygon.

Many of these polytopes, however, are so complicated they exist on paper only. These fancy objects cannot be formed and molded, but they can be described, no matter how many dimensions they may take.

These multi-dimensional figures appeal to Coxeter because they are *symmetrical*: they look the same when viewed from various directions, that is, they can be turned about and still appear the same.

He quietly admits it is difficult to reduce the complex nature of his work into words the rest of us can understand. To try and find a simple definition of the theory of groups—basically the study of abstract algebraic objects including numbers and how they combine according to specific rules—Coxeter searched through journals and chapters of several of his own books, including *Introduction to Geometry*, *Projective Geometry*, *The Real Projective Plane*, *Non-Euclidean Geometry*, *Regular Polytopes*, and *Twelve Geometric Essays*.

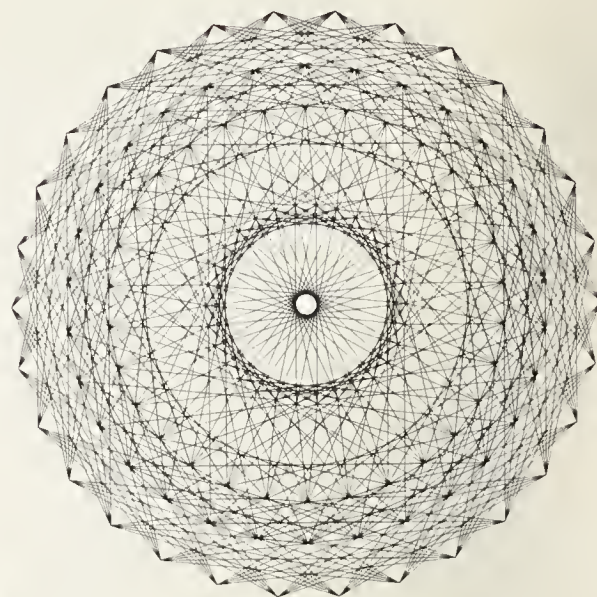
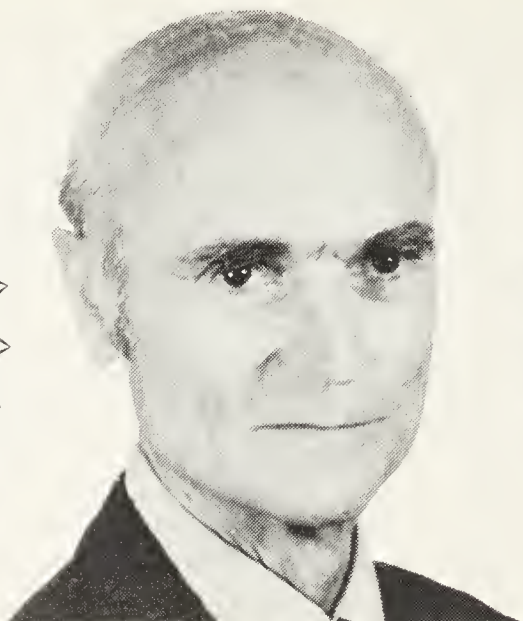
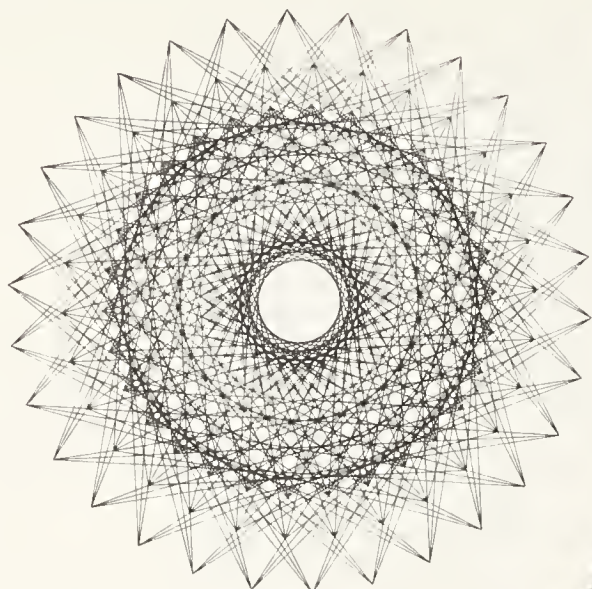
There is something pleasing to a mystic in such a land of mirrors. For a mystic holds . . . that two worlds are better than one. In the highest sense, indeed, all thought is reflection.

—G.K. Chesterton, *Manalive*

But does Coxeter's work have any application in the real world? Or is he just playing with ideas? Professor Stephen Pierce, an algebraist in the Department of Mathematics, says: "He is not working on applied mathematics, for example, the kinds of problems where someone approaches him from engineering. Yet an understanding of higher geometry can be used to solve problems like this."

Architect Buckminster Fuller certainly found Coxeter's work useful; Fuller dedicated a book to him. Crystallographers found his experiments with kaleidoscopes useful; Coxeter discovered that certain four-mirrored kaleidoscopes could give insight into molecular structures, such as the arrangements of carbon atoms in a diamond. In fact, the algebraic structures that underlie such generalized kaleidoscopes are now called "Coxeter groups". Coxeter also discovered a means of presenting these groups as diagrams in which each mirror appears as a dot.

Coxeter's mathematics extended into art in 1954 when he met M.C. Escher at an international congress of mathematicians in Amsterdam. Escher, best known for his plausibly impossible distortions of perspective and his designs in which birds or fish or reptiles are endlessly repeated, wrote to Coxeter a few years later asking for a simple explanation of how to construct a series of objects that become gradually smaller as they approach a peripheral circle into which they melt away towards infinite smallness.



Claiming to be “absolutely innocent of training or knowledge” in mathematics, Escher wanted to create a feeling of a round world with fish shooting up like rockets from infinitely far away and falling back to where they came from, with not one single component ever reaching the edge. He wanted to imply that outside this round fishy world there was “absolute nothingness”, yet suggest also that out there in the “nothingness” a scaffolding lies—determining with geometric precision the centres of the circular arcs which form the framework.

Coxeter saw that he was trying to utilize a famous, though obscure, way of representing the hyperbolic non-Euclidean plane on a disc. His explanation, which discussed the kind of symmetry involved, a cleverly disguised tessellation, and the various angles along which the fish swim, was of immense use to Escher in the development of his picture.

But is Coxeter just playing with ideas? “He might be,” Pierce says. “But he would never admit it.”

The northern ocean is beautiful, and beautiful is the delicate intricacy of the snowflake before it melts and perishes, but such beauties are as nothing to him that delights in numbers, spurning the wild irrationality of life, and the baffling complexity of nature's laws.

—Professor J.L. Synge, Kandelman's Krim

For Coxeter, mathematics is a world of perfection. “You get away from the real world into a better world. That's the fascination of it. In nearly everything else you have an opinion. In mathematics, something *is*. Or is *not*. The mathematical consequences of basic assumptions are inevitable.”

Coxeter, a vegetarian since childhood, subscribes to the purest social concerns. He is pro-ecology, anti-nuclear power; he is in favour of solar energy, windmills, and harnessing tidal power; and he is against smoking, extravagant life styles, and whale and seal hunting.

“But if you decide *against* doing anything practical,” he told 1979 graduates during his Convocation address, “then you can escape, as I have done, into the different world of mathematics.”

His mathematical abilities manifested themselves at an early age. While most of us were fidgeting with the comic pages, young Coxeter was fascinated by the columns of numbers on the stock market pages. Naturally, he did better at mathematics than other subjects at school; at 15 he won a prize for an essay on the analogues of regular solids in four or more dimensions.

As a result of this essay he came to the attention of

philosopher and mathematician Bertrand Russell. Russell introduced him to Eric Neville, a professor of geometry who persuaded him to learn enough pure and applied mathematics to win a scholarship to Trinity College, Cambridge, in 1926; he received his PhD in 1931.

In 1936 he married Rien Brouwer of The Hague. In that same year he took a position at U of T and, despite tempting offers from other universities, he has remained here for over 40 years. Now semi-retired, he is still active in research and continues to supervise graduate students.

Whether one understands Coxeter or not, none disputes his international prominence. Arthur Kruger, dean of arts and science, says: “Throughout the world, when scientists and mathematicians hear Toronto, they say: ‘That's where Coxeter is’.” Associate chairman of mathematics Stuart Smith says: “I wouldn't say he is a prophet in his own time. But he certainly is a legend. He is held in the highest esteem and regard throughout the world. He is a scholar and a gentleman in the best sense. I respect him as a man—a total man whose work is part of who he is.”

In May 1979 his colleagues gave a symposium at U of T in his honour. A month later he received one of the highest accolades a scholar can achieve, an honorary degree from his own university.

Coxeter has gone around the world as a visiting faculty member, featured lecturer, and delegate at several international mathematical congresses; he holds five honorary degrees; he is the only mathematician in Canada who is a fellow of the Royal Society of London; and in 1976 he was made a foreign member of the Royal Netherlands Academy of Sciences.

He considers his life as an adventure. “Yes, that's the way to put it, an adventure. Others gave much encouragement and an exchange of ideas, especially my students. About a third of my papers have been collaborations. And there's the travel. And meeting people with rich ideas. Even the Russians use the Latin alphabet in their mathematics, you know. Like music, I think mathematics can help unite mankind.”

If Coxeter's life is an adventure, it may also be like a Pythagorean theorem. He makes his statements, presenting them with logically developed proofs, each combining a degree of unexpectedness with inevitability and economy. Like one of his polytopes, nothing has changed but the angle of perception.

I asked him if he agreed with Shelley, that “the island of knowledge increases the shoreline of our wonder”.

“Yes, yes,” he replied. “That's it *exactly*.” ■

TADDLE TALE

By Ian Montagnes



UNIVERSITY COLLEGE ARCHIVES

Once a clear stream ran through the University grounds. Students fished in the pond it formed where Hart House now stands, and trapped wild rabbits in the bush which filled its valley up to Bloor Street. In fine weather they drowed on its banks under clumps of pine and balsam; in autumn they used its waters in initiation rites. They called it Taddle Creek.

That was more than a century ago, when the stones of University College were new. But the Taddle—long since forced underground—has never let itself be completely forgotten. Still flowing, it remains one of the few sources of folklore indigenous to the campus; and along its buried course it links the earliest days of town and gown.

The Taddle crossed the campus from north to south, flowing (to follow modern landmarks) beside Philosopher's Walk, beneath Wycliffe and Hart House, through the gully behind the Sigmund Samuel Library, and so to College Street. A few hundred feet further south it reached the Caer Howell, unofficial student centre of the 1860s, where a man could recover from bookwork with sausages and pork pie, drink lager beer, smoke cigars, throw dice for more drinks, sing, and dance jigs and reels until the College curfew threatened. The Taddle circled the tavern's bowling green and continued south, past the site of the 1852 Provincial Fair, forerunner of the CNE. It crossed University Avenue just south of the modern Hospital for Sick Children (the site also of Mary Pickford's childhood home) and disappeared underground.

Go back in time before the University of Toronto, before the city's sewers. The Taddle purls onward, east and south, skirting the Macaulay property where Holy Trinity Church will rise. It crosses Yonge Street near Shuter, passes the future site of Massey Hall, and zigzags eastwardly. Its ravine is big enough to interrupt Queen Street.

At Moss Park our stream is joined by another, flowing south from the open land where the Normal School and later Ryerson Polytechnical Institute will rise. Then, in a sweeping curve, it rushes to the bay at the foot of Parliament Street. A narrow wooden bridge spans the ten-foot gully it has broached in the lakebank. On a visit in 1793, Lieutenant James Givins is reputed to have paddled up this stream under the impression he was exploring the Don.

And here, along the bay and nestled in the Taddle's curve, John Graves Simcoe laid out the first eight blocks of homes and shops for his capital of York. At the creek mouth he ordered built the first parliament buildings of Upper Canada, opened in 1797 and burned by an American war party in 1813. Pioneer scullery maids and volunteer firefighters drew water from the creek. On its grassy banks York held its earliest fairs. And nearby, behind the legislative chambers, the Clerk of the Crown, John Small, shot and killed the Attorney General of Upper Canada, John White, in a duel over the reputation of the former's wife. It was some years before Mrs. Small again was welcome in polite society.

The naming of the Taddle is obscure. One theory links it with the Tattle family of Toronto; but the old Tattle homestead, at St. Clair and Avenue Road, is on the other side of a watershed. Others have it that the name comes from tadpoles that inhabited the water; or that it is onomatopoeic, recalling the sound of water over stones: W.G. Cooke (Trinity 6T8) points out that *tattle* is an English north-country dialect variant of *toddle*, which in the past could mean "to move with a gentle sound, as a stream or river". In any case the name was used only in the area of the campus, and even there the official designation was University Creek.

The source of the stream also is uncertain. Members of the University community who live in Wychwood Park,

atop the Davenport hill west of Bathurst Street, claim with some probability that they are close to the headwaters, but the pond in their little enclave is fed from a stream that rises further to the north. Where, no one seems to know. It is a small jump, however, from the stream that empties the Wychwood pond, which still today runs briefly in the sunshine before dropping into the sewer system, to the neighbourhood of St. Alban's Church in the west Annex of Toronto, the farthest back I have been able to trace the Taddle on 19th century maps. From there it flowed southeasterly to cross St. George Street a block and a half above Bloor.

Mrs. H.J. Cody, widow of a former president and chancellor of the University, knew it as a small stream in the 1890s, quite lost to sight in the green fields and market gardens west of St. George. To the east of that thoroughfare the Taddle passed behind her childhood home. The cedar block pavement was raised at the intersection of Prince Arthur and Bedford Road to let the water through; a pool gathered in the spring, large enough to float small rafts. (A new public park at that corner has been named in memory of the Taddle.)

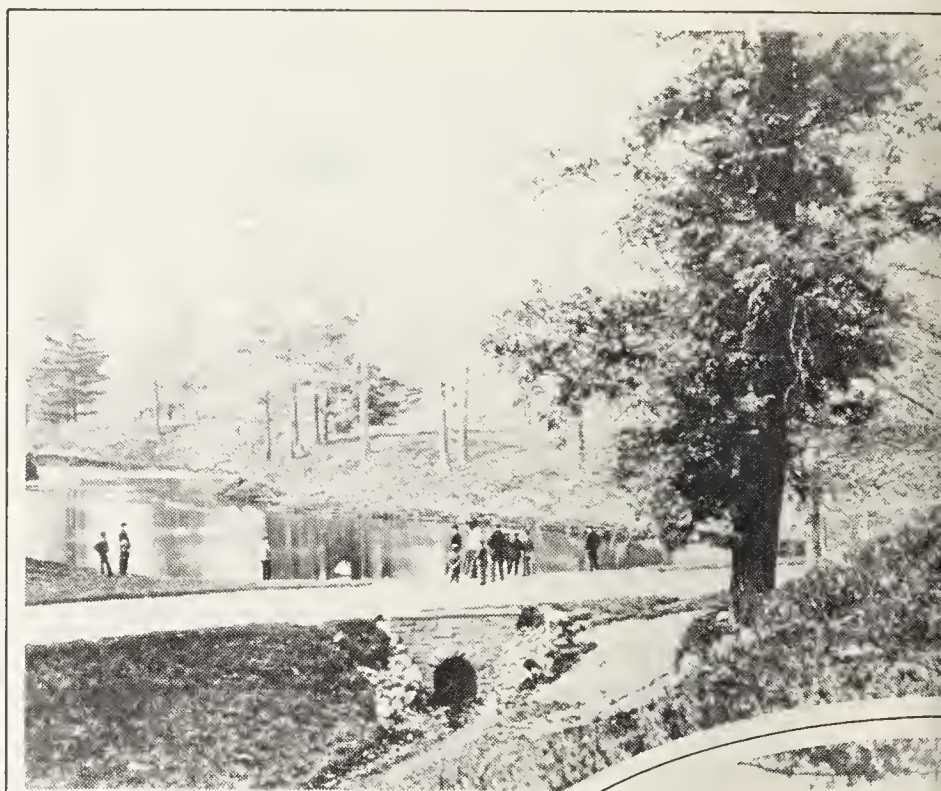
A little further and the stream turned sharply south, ready to cross under Bloor. At the curve John Shaw, mayor of Toronto from 1897 to 1899, had a pleasant gabled cottage with a fine garden running down the gullyside. Across the gully, by Avenue Road, stood the Nordheimer mansion, a civic showplace. But some people remembered the site for the Tecumseh Wigwam, a resort somewhat less respectable than the Caer Howell, frequented by young bloods of Yorkville.

*John Margetson, he lives here
He sells brandy, wine and beer*

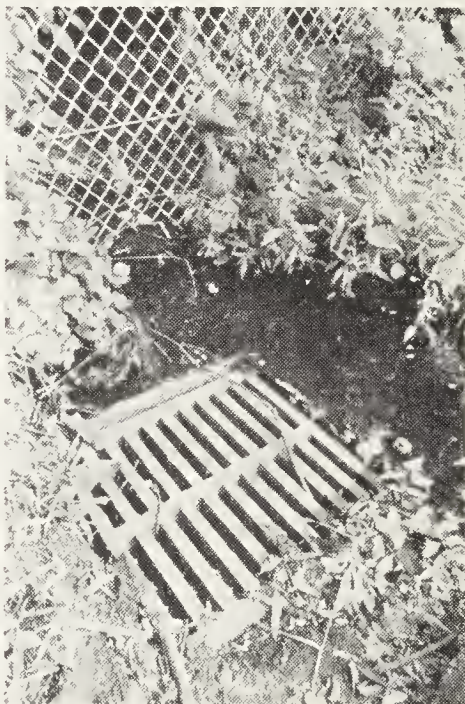
its sign announced. The Wigwam was torn down in 1874; the mansion in due course also disappeared; another hostelry rose. The builders of the Park Plaza are said to have had difficulty finding firm footings around the old creek bed, but they persevered, and eventually other generations of undergraduates found themselves following the Taddle in search of liquid comfort.

The creek's real fame lies in only a few hundred feet of its course—those close to the centre of the campus. Here, on its eastern side, was built in 1842 King's College, predecessor of the University of Toronto, on the site of the present parliament buildings. And here, on the other side, rose the nucleus of the University, the main building, now University College, completed in the autumn of 1859.

A dam was constructed where a road now enters the campus from Queen's Park Crescent, and the miniature lake thus formed stretched to the present site of Wycliffe College. A freshman arriving in the 1860s found "a beautiful pond, closed in with forest trees, the eastern edge blue with some curious water flowers; and at the upper end of the still blue surface, a number of wild ducks were swimming about . . . Away down the valley below this pond, a little stream, into which the overflow of the pond emptied, meandered through clumps of bulrushes and willow trees: a little wooden sidewalk descended into this valley from the west and rose again in the distance: the hills on either side were clothed with evergreens, pine and hemlock, spruce and balsam, and crimson maple trees." (The quotation comes from *The Golden Age*, volume 5 of *Studies of Student Life* written by Professor W.J. Loudon.)



The miniature lake



At Davenport Road



UC reflected in the Taddle

*O, gentle Taddle! wandering by thy side,
I watch thy merry waters glide,
And hear the murmur of thy limpid tide,
Taddle.*

*Of undergraduates full many a race
Here by thy banks have dwelt a little space,
And known and loved this mem'ry haunted place,
Taddle.*

*And often have thy banks and bosky glades
Resounded to the laugh of youths and maids
As careless, happy, free, they sported near thy shades,
Taddle.*

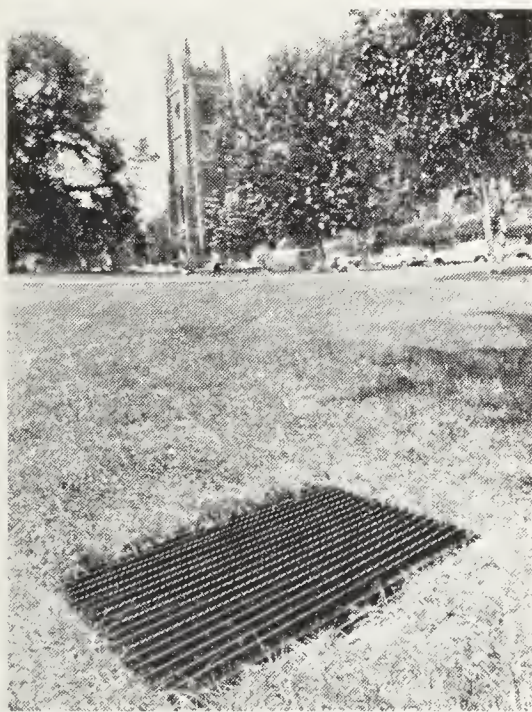
*Here many a deed of blood and derring-do
Has bearded Senior or relentless Soph put through,
And stained with Freshman green thy waters blue,
Taddle.*



Lucius O'Brien's perspective



NOTMAN PHOTOGRAPHIC ARCHIVES, MCCORD MUSEUM MONTREAL



At Hart House Circle

UNIVERSITY OF TORONTO ARCHIVES

In those simpler days it was not unknown for undergraduates to spend spare moments beside the pond picking wildflowers and chasing butterflies. Some caught chub and shiners and the occasional speckled trout in its water. In winter the pond made a natural skating rink and the slopes beside it were popular for tobogganing. In spring young lovers found it a romantic rendezvous, and in summer families watched while youngsters sailed toy boats on its surface. At least one student prankster made use of it—to hide the College lawn mower under several feet of water, where it remained until the pond was drained years later.

But in the autumn the Taddle had a very different reputation, particularly for those freshmen who lacked respect for their elders of the second year. Dragged first to the hazing stone in the University College quadrangle ("Hic jacet corpus tironis" was traced upon it: "Here lies the body of a freshman"), then down to the basement to stand trial, the offender was swiftly taught his errors. For those who would not recant, the Taddle waited—no joke on a chill November evening. In 1882 the water failed to cool one freshman's ardour. He complained, and in the row that followed the practice of dunking came to a forced end.

One who loved the Taddle was John McCaul, first president (1850-80) of the University of Toronto. The pond was named in his honour and it was his pleasure to walk along its shore with colleagues and visitors. "Long after I am dead," he would remark, "and after my scholarship is forgotten" (he was a classicist) "my name will live in this pond." Poor man: Taddle Creek and McCaul's Pond were buried two years before he was.

The reason, even then, was—pollution. Yorkville, growing upstream from the campus, dumped its waste in drains opening onto the stream. Townsfolk used the pond for the execution and disposal of unwanted pets. The Taddle was no longer fresh.

Its plight provided *The Varsity* with an early political campaign. One of the briefest pronouncements appeared on Nov. 4, 1881: "The stench arising from the Taddle is very pronounced. The prevalence of so much fever in the city is surely a good reason for the prompt abatement of this longstanding nuisance." The University agreed. The Taddle was an open sewer: it was up to the city to close it.

Fortunately, the University had clout. It owned a great deal of land and it refused to allow more streets to be opened within its boundaries until something was done. In May 1884 tenders were called; the contract to enclose the Taddle in a sewer was let to A.J. Brown for \$15,495. With victory in sight, *The Varsity* could afford to express regrets in a blessedly anonymous example of Victorian undergraduate sentiment (see box).

So the Taddle was buried, but still it is with us. The men and women who work in Hart House will tell you it gurgles beneath the squash courts and the camera clubrooms. Householders in the Annex talk of flooded basements; the builders of the Medical Sciences Building and the Hospital for Sick Children have had to contend with its vagaries.

And on a clear day, when the sun is high, if you peer down a grating in the lawn in front of Hart House, you can still see the old stream flowing. On such a day, when professors are locked inside their offices writing books and students are in the libraries reading them when they could be picking wildflowers and chasing butterflies, it isn't hard to imagine that, deep underground, the imprisoned Taddle chuckles.

But sentimental fancies, deeds of gore,
Shall twine around thy sacred name no more.
Thy days are ended, and thy glories o'er,
Taddle.

The City Council would thy stream immure,
And shut thee up with bricks and lime secure,
And make thee — Ichabod! — a common sewer,
Taddle.

Let's soothe thy parting spirit with a Freshman's blood,
And while there's time, imbed him deep in mud,
And sail him tenderly down thy flood,
Taddle, O, Taddle.

— The Varsity, October 6, 1883

COMPUTERS NEVER LEARN

Let's face it, most of the people who play chess, who enjoy chess, are not very good players. So for anyone who is just playing recreational chess, or just playing once in a while, or who has played less than a year, these microcomputers are OK, but they're not really *strong* . . ."

Zvonko Vranesic can say this, not condescendingly, not disparagingly, but matter-of-factly. As a chessplayer, Professor Vranesic is far removed from *recreational* chess. Currently ranked the 16th strongest player in Canada, he is one of 13 Canadians to hold lifetime titles from FIDE (pronounced fee-day by chessplayers — it stands for Fédération International des Echecs), the governing body of international chess.

Zvonko Vranesic is an international master. It is not a title to be taken lightly. It involves as much work to attain as any academic master's degree — probably closer to a PhD.

Zvonko Vranesic is also an expert on computers — he is a professor in U of T's computer group in the Department of Electrical Engineering. Not surprisingly, he has combined his vocation and avocation and taught computers to play chess.

When Vranesic says he is not impressed by the chess programs available for microcomputers — the Commodore PET or the Radio Shack TRS-80, for example — he says it with the knowledge of what the largest and fastest computers are capable of — and what they are not.

With his intimate knowledge of both computers and top-level chess, Vranesic can provide an insight into the future of chess programs that pure chessplayers or pure computer programmers often lack.

In the 1962 television program "The Thinking Machine", computer experts predicted that a computer would be able to beat a grandmaster within 10 years. In a 1973 article in *Chess Life & Review*, David Levy, another international master (and former computer programmer) wrote: "I am tempted to speculate that a computer will not gain the international master title before the turn of the century and that the idea of an electronic world champion belongs only in the pages of a science fiction book."

In 1968, Levy, then Scottish champion, bet that no computer program would be able to beat him in a serious match within ten years. In September of last year Levy won his bet. Due indirectly to the activities of Vranesic, that match was played in Toronto at the Canadian National Exhibition. But the match was by no means easy for Levy and the computer scored a major breakthrough. It won the fourth game of the five-game match, the first time a computer had

beaten an international master in a serious game.

Though computers have progressed faster than many people predicted, they still have a long way to go before one will be capable of playing chess at anything like the strength of a world champion. To do that a breakthrough in the structure of chess programs will have to occur — perhaps even a quantum leap that will take computers out of the class of the "incredibly fast moron" and into the realm of artificial intelligence.

When a computer examines a position it does three main things: it lists the possible moves; evaluates each position; and constructs a "look-ahead tree".



Zvonko Vranesic tells how to beat your chess computer, and explains why you may not be able to much longer

By Chris Johnson

When a computer lists all the possible moves in a given position, it does just that: it lists them *all*. A human player would glance over the board and choose maybe half a dozen, maybe just one or two, of the most likely looking moves. And here lies the difficulty in programming a computer efficiently.

The average number of possible moves in a chess position is 35. To each of those 35 moves there are 35 possible replies creating 1,225 different positions that can arise after just one move by each player. For each of those 1,225 positions there are 35 possible moves, and for each of the resulting 42,875 positions there are 35 possible moves, and for . . .

In very short order the numbers are beyond human comprehension. Fast as modern computers are — and they can perform as many as 10 million operations a second — they cannot begin to compute all the variations that could arise.

“That tree turns out to have something like 10^{60} or 10^{70} positions that have to be looked at,” says Vranesic. “That’s immense. The estimated age of the solar system is 4 billion years, or about 10^{18} seconds, insignificant compared to the number of combinations in a tree that a perfect game of chess would require. There’s just no way that could ever be done.” The number of possibilities is so great that a million computers, each playing one billion *games* per second since the beginning of the solar system would by now have analyzed only one-ten-millionth of all the possible games.

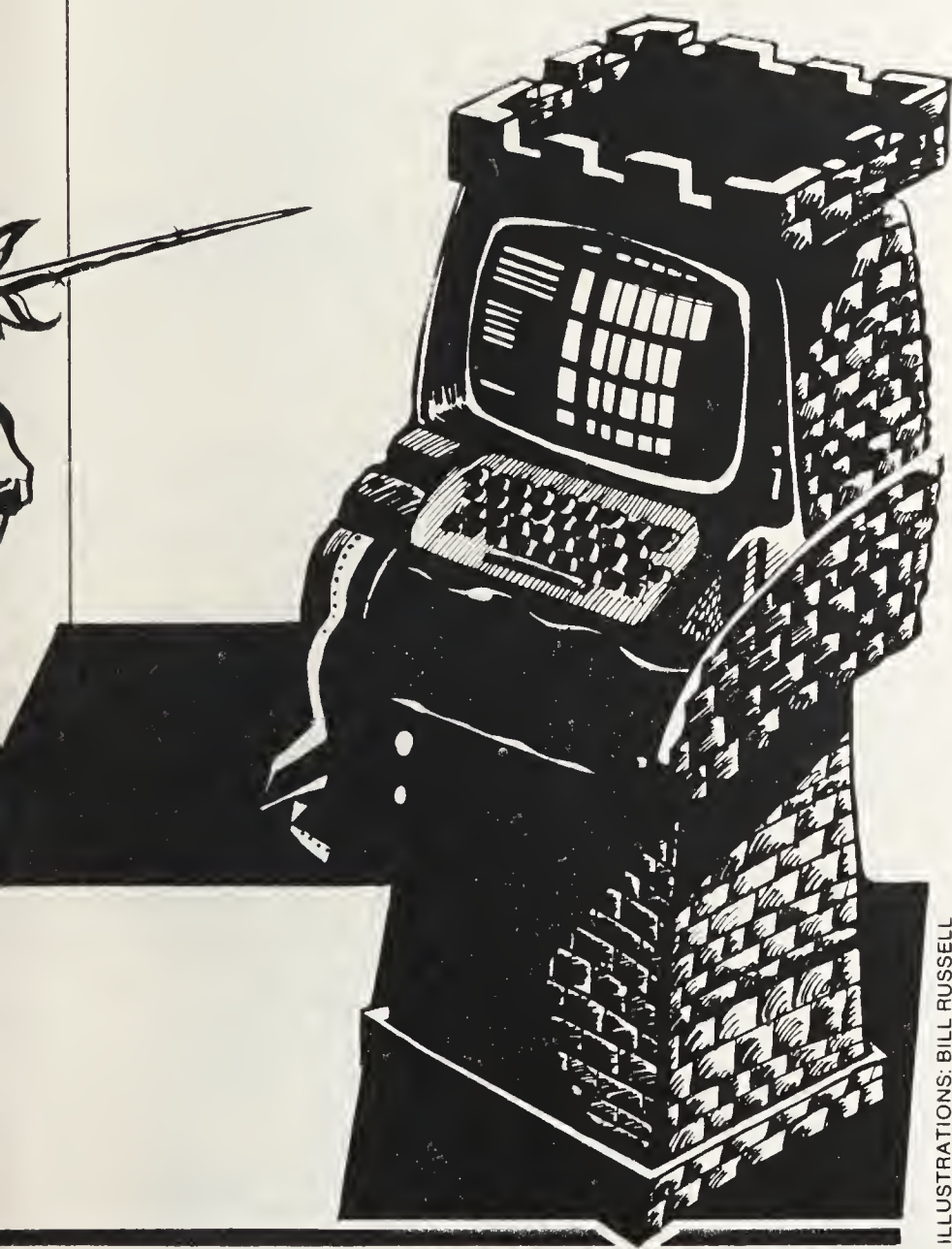
The biggest problem therefore, in preparing a chess program, is to prune the look-ahead tree down to manageable size. The methods used to do this are still fairly primitive.

First, the computer will only analyze to a depth of seven or eight half-moves (a half-move being a move by one side). Some lines, however, it will examine further. These lines are ones in which there are forced moves (an attack, for example, which has to be parried and therefore limits the number of possible replies) or where pieces are being exchanged. These lines will be played until the situation stabilizes.

This is where the computers are extremely strong, in tactical situations. Probably the strongest chess program in the world is Chess 4.7 from Northwestern University in Evanston — the program that played Levy last year and beat him in one game.

“The Northwestern program does very well in complicated positions where there are lots of attacking possibilities, lots of combinations,” says Vranesic. “You’ll find that whenever a human loses to a program it’s always because he gets caught in some complicated position and the program analyzes it better. But if you can get a program into a quiet position . . . Levy knows this very well. When he wants to win he just plays very quietly and locks all the pawns and doesn’t allow any dynamic play at all. Eventually the program doesn’t formulate the right plan and he gains the upper hand. But in a wild scramble, such as the game he lost, he got into complications and the program just did better.”

And there Vranesic puts his finger on a major obstacle programmers have to overcome — planning. Chess is vastly more than tactics and combinations. The problem is not just





being more selective about which variations to analyze — in itself difficult to program — but in non-specific understanding of a position.

As Vranesic puts it: "A player might think, 'Gee, if I could just get my knight to such and such a square, I could do all sorts of damage.' Yet that very simple statement is extraordinarily difficult to put into a program." It is not specific enough for one thing. How does a player know which piece to play? If it is close to the square in question, a computer program is likely to find it anyway. But if it is on the other side of the board it may take a lot of maneuvering to put it into play. Pieces may have to be moved out of its path. It's journey may have to be postponed due to threats or tactical considerations. The human player can recognize *potential* threats, weaknesses and strengths that may not turn up in analysis within a computer's range.

This is called the horizon effect: if a computer analyzes a variation that shows little promise or has no forced moves, it will stop analyzing after its normal seven or eight half-moves. Yet on the very next move there could be a devastating check, or a capture. The computer may have rejected what could have been a winning line.

A human player could miss it, too. But there is a good chance he would see the potential for that strong move and could maneuver his pieces to make it possible.

One of the most significant events in chess programming occurred at the last North American Computer Chess Championships. At that tournament, the Northwestern University program lost to Belle, a program developed by the Bell Research Laboratories on a minicomputer.

"For years the Northwestern programs have been running on very large machines, on the largest machines that Control Data Company makes," says Vranesic. "It's almost impossible to compare the machines; this difference is in the order of a magnitude."

Remarkable as it may have been, Belle's victory is probably indicative of future trends in chess programming. Since the number of possibilities in a game of chess is so large, brute force analysis of as many variations as possible won't provide the best program in the long run.

Chess is an intellectual game *par excellence*; it embodies

many qualities that are peculiarly human. Planning and judgement in chess are activities of the mind that are not based on specifics that a computer can analyze. A good player can intuitively pick out a good move with just a glance at a position. The human brain can take short cuts; a computer has to slog through variations.

The next major breakthrough in chess programs could well be the ability to duplicate human short-cuts. A human brain may retain dozens of *types* of positions and formulate plans based on knowledge of them. The computer, to do the same, would have to store millions of *specific* positions. Once this ability is achieved, chess programs will not need such massive amounts of memory — although they will still need more than the present microprocessors can provide.

Cost is another factor. Chess programs are so massive and complicated, and time on large computers so expensive, that it costs a small fortune to develop a program.

That is why U of T is no longer actively working on a chess program, and that is a shame, for not only would such work give students experience in one of the most advanced areas of computer programming, it would give them first-rate training.

"A lot of people tend to think that work may almost border on the frivolous," explains Vranesic, "but it's rather amazing when you see what happens to graduate students who work on such programs. When they finish they have an incredible number of offers from all sorts of companies for two reasons. They have written a program that is typically much larger than anything their friends have done as part of course work, and because of all the problems that are associated with such work they get to know the machine very well. Also, the problems are really not much different from what you run into in just ordinary computing anywhere in industry."

Last spring Vranesic gave a lecture at Hart House entitled "When will a computer beat a grandmaster?" I put the same question to him: "Within five years a computer program will probably be able to beat a weak grandmaster. But they still have a long way to go before one will be able to compete with a world-class player," he replied.

When will a computer become world chess champion? When computer programs can emulate the human brain — when they can learn — when they can generalize. ■





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CORDIAL BUT NOT COSY

Horrified gasps and wry chuckles used to greet Auditor General Maxwell Henderson's annual report, with its staggering accounts of extravagance and stupidity in federal spending. While the present auditor general may be less flamboyant, he's no less effective, says Sonja Sinclair (BA, Trinity, 4T3) in her book, *Cordial But Not Cosy: A History of the Office of the Auditor General* (McClelland & Stewart, 1979, \$19.95).

Described in *The Globe & Mail* as a timely and highly readable treatment of an important office, the book outlines the transitions in the 100-year-old office of the auditor general, as well as the personalities and professional problems of the seven men who've occupied it. "The book gets right into the bureaucratic in-fighting and jockeying-for-position", says *The Ottawa Journal*.

Sonja Sinclair is communications director with Price Waterhouse Canada, a Toronto Symphony director, and was a member of the University's Governing Council for six years.

THE GRADUATE TEST NO. 2

Whew! First came a trickle, just a few letters a day, and then it became a flood, with as many as thirty or more correct solutions to The Graduate Test No. 1 coming in at a time. We watched the stack grow with a mixture of apprehension and delight. Obviously many of you enjoyed this, our first cryptic crossword (although many of you thought it too simple) and just as obviously it was going to devour a great deal of space to print, as we promised, the names of all successful entrants. Well, here they are, but we can't do it again. There are some 270 names and addresses here; in future we'll let you know the number of answers and the name of the winner.

On July 2 we drew the winner, and

a copy of *Karsh Canadians* by Yousuf Karsh has been mailed to C.S. Goldfarb of Toronto. The University of Toronto Press has again generously agreed to provide a prize for The Graduate Test No. 2, this time a lavish confection, J. Russell Harper's *Krieghoff*. The book contains 150 reproductions of his work, 53 of them in colour. We'll draw the winner from the correct solutions received by October 12. Address entries to The Graduate Test, Department of Information Services, University of Toronto, Toronto M5S 1A1.

And thanks for the comments, both critical and approving, which many of you added to your entries.

— J.A.

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son, Islington; Ruth Thorne, Toronto; E.H. Thring, Mississauga; Graham H. Tomkins, Pickering; Miss V.M. Turner, Toronto.

I. Valmanis, Winona; Grace Vallis, Toronto.

Russ W. Waller, Kingston; Tom and Grace Wardlaw, Waterford; John L. Watson, Toronto; Alex M. Weir, Islington; Eleanor C. Weir, Vancouver; James S. Weir, Peterborough; R.W. Welland, Hamilton; Donald C. West, Montreal; J.A. Wuest, Cross Creek, N.B.; Charles A. White, Don Mills; Sandra Wilde, Fredericton; A.F. Williams, Don Mills; Bob Willick, Brighton; Valerie C. Wilmot, Ottawa; Mary E. Wilson, Sarnia.

Douglas Yardley, Don Mills; W.E. Young, Islington; Barbara P. Yule, Islington; Andrew Yull, Toronto; Dr. Jocelyn Zuck, Willowdale.

One anonymous reply was received through U of T campus mail.

Solution to The Graduate Test No. 1

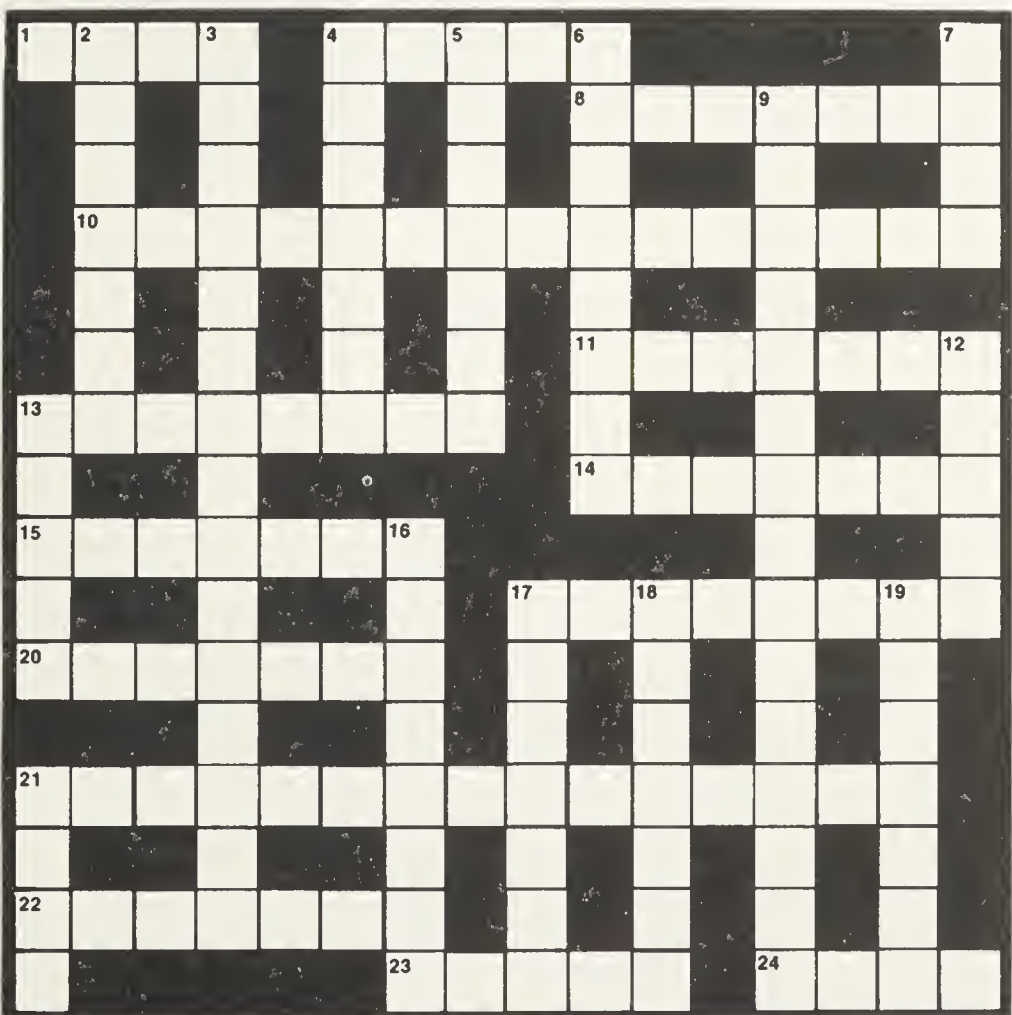
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R	N	S		N	P	R	R	Y					
T	O	T	A	L	T	E	R	R	O	R	I	S	M
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P	O	P		R	E	A	P	S		I	N	L	E
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D	R	Y	A	D	S		G	A	R	G	O	Y	L

ACROSS

1. Reap rice without rare poem (4)
4. Order in the dictionary (5)
8. In the dim past one laid it on a bit thick (7)
10. It's obvious that foxes really pant (4-11)
11. Generate ideas among the bells (7)
13. It's bound to be inside the cover (8)
14. Without you, sorrow begins anew each day (7)
15. Signs of learning in a revolution (7)
17. One may shoulder such praise (8)
20. Lure lab assistant to look at its spots (7)
21. Singer on a London newspaper? (5,2,3,5)
22. Thinks about a place to fish (7)
23. Socked it to a dirty car, perhaps (5)
24. And sodium may be found in Sicily (4)

DOWN

2. Scholarly success charged radical emotion (7)
3. Hertz might rent them at this rate (6,3,6)
4. Surround with love in the pen (7)
5. Sound of damage by a mischievous couple (3,4)
6. It starts with a giant satellite, my dear Watson (8)
7. We hear Swiss cheese might come from this land (4)
9. First of three (15)



12. A glee club might wing it (5)
13. Its clean breast may have let down one or the other, we hear (5)
16. Rash fits a radiate creature (8)
17. Curve belongs to a woman when they take a bow (7)

18. Oh, oh! Sent the king home for protection (7)
19. China in Germany reddens (7)
21. Kind letters (4)

Chris Johnson is in charge of graphics and typesetting for The Graduate.

Memorandum

Re: The Report of the Special Advisory
Committee on the Teaching of Writing

The Special Advisory Committee on the Teaching of Writing was established by Vice-Provost Israel in response to the general concern in the University about students' competence in writing. The Committee was asked to do three things:

1. To report on the nature and extent of the problem as it is perceived in the University;
2. To discover how much of the University's resources have already been deployed to meet it;
3. To recommend ways by which the present difficulties might be alleviated.

The Committee was chaired by Dr. Fergal Nolan and presented a Report on January 30, 1979.

The Committee reports that a significant number of students seem to be deficient most often in knowledge about the following areas of English composition: spelling, punctuation, the nature of principal and subordinate clauses, ordinary grammar, ordinary syntax, the nature of a paragraph, and the utility of style in ordinary composition. Elementary logic in thinking and coherence in expression are often found also to be missing in such students. The Committee finds reason to fault both the secondary school system and the University of Toronto for this state of affairs. It concludes, also, that the problem of deficiencies in writing must be viewed as a long-term problem.

The Committee reports that much

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INVITATION TO CHEAT

Take-home exams

I take sharp exception to the iniquitous practice of take home exams advocated by Professor Roselyn Stone in your spring issue.

Take home exams are a savage penalty on the good students and an invitation to cheat for the weak ones. I well remember a brilliant lecturer at Cornell who blighted his course with take home exams. Those of us who were obliged to maintain scholarship grades dreaded them. In any set exam, be it closed book or open book, we would hold our own with no more than normal time allotted to the course. On a take home exam one had to go to extraordinary ends to establish an "A" grade, meanwhile fending off weak students who tried to cadge help. I kept track of one instance in which I spent 22 hours of "homework" on one exam in order to keep that "A" standing.

Even after all these years, the mere

mention of take home exams raises my hackles. Professor Stone, DON'T DO IT!

W. Grierson
Institute of Food & Agricultural Science
Lake Alfred, Fla.

News from home

Reading about what's happening at the University of Toronto is most exciting and makes those of us who left that institution years back feel like we are right there with you.

A.N. Watakila
Nairobi

Money, money, money!

The spring issue of the *Graduate* has just arrived but the old refrain continues: money, money and more money. Is this all we graduates are for? Yes, we should support our

university, and yes, we should help repay the university for the superior education we received, and many of us do.

However, there is an aspect which the university does not consider. Not all graduates of U of T live in Canada; the university has a world-wide reputation, therefore graduates are eagerly sought out by other nations, further it would be selfish to confine such excellence of education to one country. But what happens to our children? We have pride in our university and want our children to have the same advantages of superior education that we enjoyed, yet admission to U of T requires that we residents of foreign countries be more affluent than Canadian residents, our children be more intelligent, and we take our chances with the quota system.

In other words, you want our money, but not our children. I object.

Joy Miles Johnson
Fort Lauderdale, Fla.

Sexlessness

Commendations on a sexless issue of the *Graduate*. I like the new format (and contents) very much.

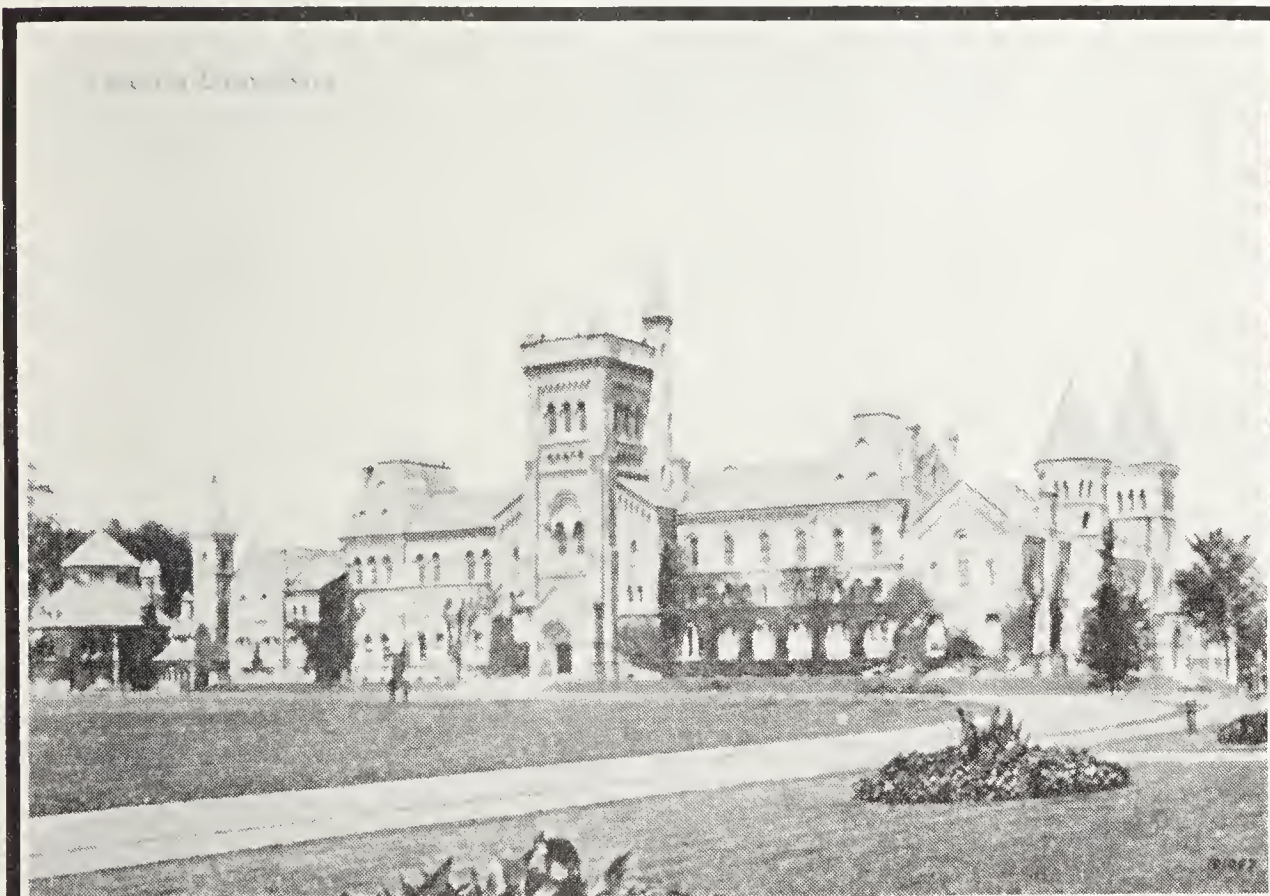
Anne Dagg
Waterloo

I was amused that Anne Dagg would have time to count photos, let alone read your magazine. But despite your denial of an anti-female policy, you printed the excuses of the manager of Alumni Records, which most definitely does indicate a glaring bias.

Rather than ignoring Smith's letters from October 1975 to April 1978, and then sending a copy of the *Graduate* to her and her husband, why did you not just send one copy to "Lorraine G. Smith (and household)" and solve her problem? Sending two copies when her spouse has not complained indicates to me that you don't want to bite that bullet!

J. Douglas Roseborough
Toronto

P.S. Keep counting photos, Anne — it may mean something after all!



I acquired this post card for 25 cents at a show held last summer in South Bend, Indiana. It seemed to me that it would more properly belong to your office.

You will notice the postmark indicates that the card was mailed in

1914: this may explain the one-cent stamp on it.

I hope you like it.

Tom Borowski
University of Saskatchewan

In the spring issue of the *Graduate*, three letters to the editor list examples of bias against women. Let me add to these another example.

When I worked, briefly, as a volunteer at the alumni office helping to up-date the card records for use in the computer, I learned to my surprise that the following instructions are given for recording the mailing title:

"If MD, DDS, PhD (man) use DR"

"If MD, DDS, PhD (woman) use MRS, MISS or MS"

If a woman has earned the title of doctor she should be so addressed. If she prefers another title, she should be given the chance to choose it.

I realize that the reason for this injustice is to distinguish the sex of the graduate in the computer record. Surely it is not too difficult to find another method of achieving this without such a put-down of distinguished women graduates.

**Edith Cosens
Toronto**

The title line, to which Miss Cosens refers, is coded as it is for historical, internal and statistical purposes only. However, the mailing line, which appears on the labels we produce, carries no sexist indication. Indeed one of the tasks of the verification project is to remove any such indications from materials sent out. In all cases the mailing line will state the graduate's given name, surname and degree.

*William Gleberzon
Manager, Alumni Records*

Changes

New editor . . . new editorial approach . . . new format . . . new design.

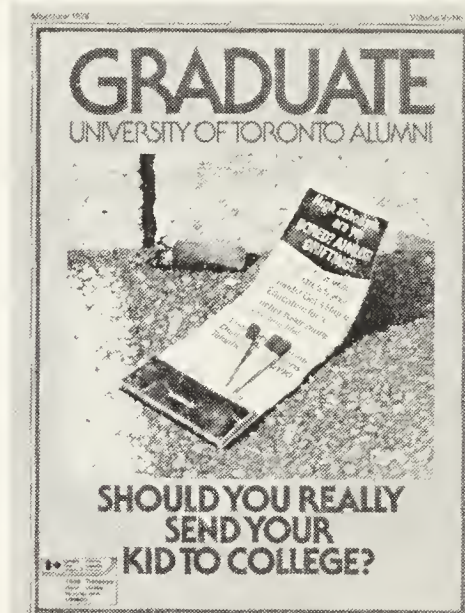
With minor reservations, I like the *Graduate* in its present format, I like the content, and I like the way the new editor has taken hold. To him and his colleagues, best wishes for more of the same.

In almost every letter like this one, there's a "however". Here is mine: I do quarrel with the editor in his use of the verb "inflicted" to describe the changes in format made by various editors through the years. As the editor who switched from magazine to "magapaper" (tabloid) in 1973, I refuse to believe that I was "causing another to suffer or undergo punishment", or "imposing something unpleasant" upon my readers, as my dictionary defines "inflict". In fact, the letters and telephone calls received after the appearance of the first magapaper issue in October 1973 testify to the contrary.

I am also puzzled as to how "the transformation from a tabloid to magazine . . . reflects the importance the University of Toronto attaches to the alumni". I can understand that increasing the frequency of publication to five issues a year may reflect importance, but not the size or shape. Surely it's the content that counts, regardless of what Marshall McLuhan says about the medium and the message.

The University of Toronto has long looked upon its alumni as important to its well-being; certainly it has in this century. In my time on campus (1964-75), we gave much thought to finding the best ways and means to communicate with alumni, but we never believed that it mattered much, except for financial reasons, what size of paper we used.

Some readers may draw the



impression from your introductory editorial that the *Graduate* has been published for alumni for the past 30 years. Not so. From 1948 until it ceased to appear as a magazine in 1972, the *Graduate* was not primarily for alumni. Really a public relations tool, the *Graduate* in those years was published with other readership in mind and for reasons I will not go into now. The University communicated with its former students from 1956 until 1973 through a tabloid paper called the *News*, issued three or four times a year.

After the *Graduate* suspended publication in 1972, we decided to replace the *News* with a new paper in which we hoped to embody the best features of both the *News* and the late lamented *Graduate*. Although at retirement age, I was asked to stay on and pilot the new journal through its first two years. This I did.

We in Information Services (then called the News Bureau) who were responsible for the alumni journal consulted the late Allan Fleming, then chief designer for U of T Press. Our decision to change from the

standard magazine *Graduate* and newspaper-style *News* formats to magapaper made it possible to mail the paper to all 120,000 or so former students. Sky-high postage rates made the mailing of a magazine on quality stock prohibitive unless there was a lot of advertising. That we did not have, and there was not then available to us, at least in eastern Canada, an agency such as there is now which would round up advertisements for us.

But enough of history — a good future awaits you. Again, congratulations on an auspicious beginning and best wishes for an auspicious continuation.

**Lawrence F. Jones
Cobourg**

In fact, the tabloid Graduate was one of the finest magapapers published by any North American university, both in content and design, and no aspersion was intended. Nor, judging from Mr. Jones' most friendly letter, was offence taken. Perhaps he will forgive the hyperbole inflicted upon readers of the editorial. The transformation from tabloid to magazine format was simply the most visible change. What is important is the intent to continue to publish a magazine struggling for excellence, rather than to bow to economic pressures.

Editor

I was somewhat dismayed to see the *Graduate* turning into just another general-interest consumer magazine. But I hope the change of policy and format will lead to some thoughtful attention to content and see the magazine as a means to keep graduates informed about a number of things happening at U of T and about ideas from a range of people in all the disciplines, not just descriptions.

You have a marvellous opportunity to go through each department/discipline and let readers know the developments and issues in each, and the kind of ideas and issues being wrestled with, and their implications. This is the kind of intelligent interpretative reporting one doesn't get in newspapers or in other magazines.

The *Graduate* could be a way for helping us to continue our education by learning about certain specialized fields in a way that respects both the intellectual curiosity of a "graduate" and the authenticity of the University.

**Margaret Gayfer
Toronto**

I am writing to congratulate the staff of the *Graduate* for a superb job on the May/June issue. I read it cover to

cover while riding the TTC. Only my most engaging reading material survives the TTC ride where it must compete with live people, posters, and the hyperbolic headlines of 1,000 "Suns".

I thoroughly enjoyed all of the articles, the more surprising since they represented such a wide range. You have set a difficult standard to maintain.

I look forward to your next issue.

Richard G. Tiberius
Division of Studies in Medical Education

I have your May/June magazine format *Graduate* and am pleased, grateful and impressed. Congratulations!

The "Battle of Fort Jock" was particularly interesting, as in the 1930s I thought Hart House was a great place. Then, in athletics, one could find Warren Stevens building the reputation for which he is now revered. The new facilities in his name, let us hope, will be directed to have as great an impact as he had.

Richard H. Miller
Cheshire, Connecticut

I have just returned from a short visit east. I spent June 1 and 2 at the old U of T, wandering around hoping to see, at least, one of the '09 or '10 or '11 but no luck.

I found the *Graduate* when I got back. I like the new format — though I just can't understand how a man who can't sign his name clearly gets to be editor. And that "disturbing and yet delightful" — awful — thing by Gail Hamilton — the worst I've read in 80 years.

I notice Iroquois Falls mentioned — revives memories of my first job after graduation. Since then I've worked on construction from the Rio Grande to the Yukon; now long retired at 90 plus.

I'm hoping to get down to the September opening of the new gym complex.

J.J. Phillips
Victoria

Enclosed is a somewhat tattered solution to Graduate Test No. 1. Being virtually a professional student, I cannot resist the urge to write a test of any form.

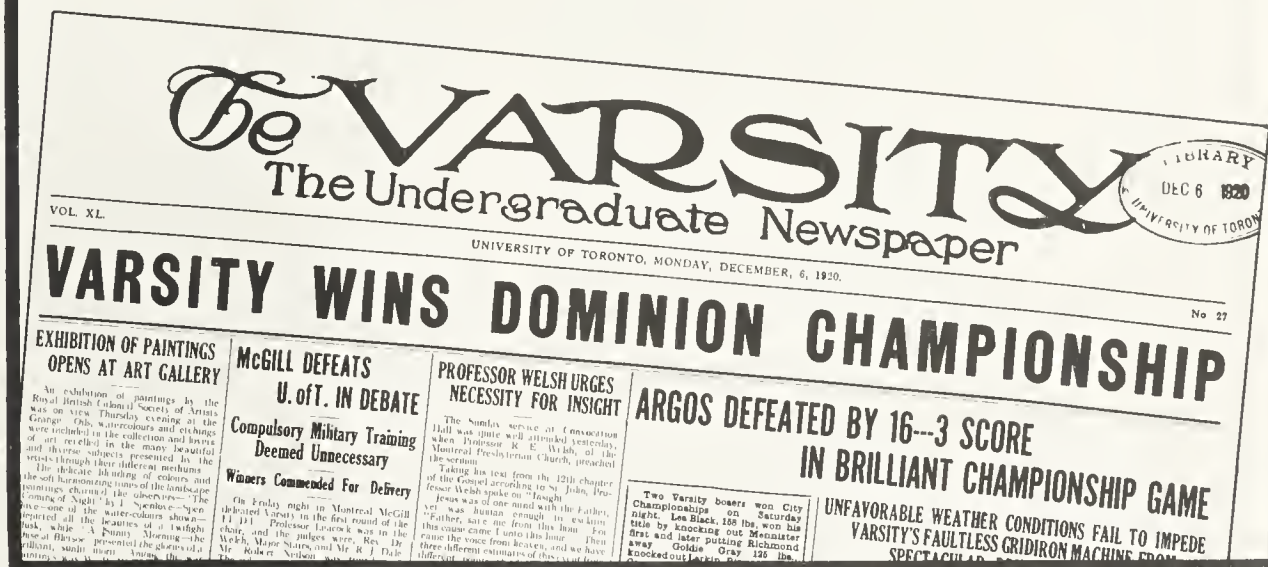
A few comments on the new format of your magazine. It seems to have come full circle as I vaguely remember a magazine in the 60s. The articles are quite good but the whisky and car ads make it resemble *Maclean's*. However, I should not complain since they are helping to

Congratulations on the first issue of the "new look" *Graduate*.

One minor correction to the story on Dr. Blatz. "He coached the 1920 Varsity football team to victory in the third Grey Cup game." The 1920 game was actually the eighth Grey Cup game. The Blues won the first three Grey Cup games (in 1909-10-

11), lost to the Toronto Argonauts in 1914, then defeated the Argos 16-3 in 1920—the last time the Blues played in the Grey Cup final.

Paul Carson
Department of Athletics & Recreation



pay for part of the costs.

Thach Bui has interesting drawings. However, I have not yet seen a student at a graduation exercise wearing a mortarboard which seems to be the symbol of graduation.

This is all designed to lead up to my main point. The graduation ceremonies at the University of British Columbia were quite impressive, as each student was given a hood as well as a gown. It would make graduation more meaningful at U of T if each graduand could rent a hood as well as a gown. The cost of the hoods could be recovered from the rental fees. Also, with hoods, the ceremony becomes more colourful to the spectators.

Again, I commend you on the inclusion of the cryptic, and look forward to Test No. 2.

Howard Bennett
Vancouver

Congratulations on the new format of the *Graduate*.

I read with great interest the article "Should you really send your kids to college?". It makes excellent sense — and would like to thank you for addressing a difficult but relevant topic with integrity and clarity.

H.K. Braden
Wilfrid Laurier University
Waterloo

My wife, Helen E. (Merritt) Johns, receives your alumni magazine regularly and we both look forward to receiving it. My own contact was brief — a year as a teaching fellow at Vic. However, I have been connected

with universities for many years, including many at the University of Alberta.

I am writing chiefly to congratulate you on the new format and its contents. The best feature was "Should you really send your kids to college?" It makes excellent sense — right down to the last line — "Send them to stretch their minds". The quotations from Dean Kruger and Dean Leyerle were well chosen and very pertinent to today's needs.

The Graduate Test No. 1 was a bright addition.

Walter H. Johns
Edmonton

Congratulations on the attractive format and interesting content of the May/June issue of the *Graduate*. This issue refused to be put down!

Keep up the good work.

Louise McDiarmid
Ottawa

The magazine coming from your office is a great improvement. Sorry to have missed the reunion. (I was not advised.)

Mrs. Charles Draimin
(Bertha King 1902)
Toronto

Letters may be edited to fit available space and should be addressed:

Graduate Letters, Department of Information Services, University of Toronto, Toronto M5S 1A1.



Alumniiana/Joanne Strong

WHERE ARE THE RADICALS TODAY?

What are the student radicals of the 60s up to now? Settled down — married, mortgaged, pushing middle-age and active in alumni associations according to Chancellor A.B.B. Moore who runs into familiar faces from the past (he was president of Vic) on his visits to alumni branches across the country. "It is appropriate to be radical when you are young," he believes. "I am always somewhat disturbed by aging radicals and conservative youth."

The Chancellor and Mrs. Moore have travelled through Ontario and western Canada and to Boston, New York, San Francisco and Washington to spark alumni gatherings and give a human image to U of T . . . This autumn President Ham will be the University's standard bearer to the branches in Victoria, Vancouver and Calgary.

Speaking of Calgary, the branch will hold a Varsity Fund telethon, Nov. 5 to 7. This is your chance to participate in a "first". Dr. Kenneth M. Glazier, Calgary branch president, would be happy to hear from U of T grads in the city. His address is 2936 University Place N.W., telephone (403) 282-0118 . . . And we'd like to convince more of you out there in Metro Toronto that being a telethoner isn't all that bad. The Varsity Fund telethon in Toronto is now on and continues until Nov. 7. Are you willing to give three hours of your time for the old school? You may discover that it's fun . . . it's certainly rewarding. If you live in the Toronto area and would like to help, call Nelson Earl, Department of Private Funding, 978-2171.

Another way you can help is to assist the Senior Alumni in verifying

and up-dating alumni records. To date, more than 50 volunteers have helped verify over 5,000 records. They tell me the surroundings are pleasant, the people nice, and the free coffee delicious. Volunteers must be willing to give a morning a week for at least a month. If you can help, get in touch with Diana Forster at Alumni Records, 978-2131.

Where are they now? Alumni Records is looking for current addresses for lost alumni . . . If you know anyone from U of T who is not getting *The Graduate* then he or she is one of the lost that records would like to find. Please pass the word along — news of current whereabouts should be sent to Alumni Records, 47 Willcocks St., University of Toronto, Toronto M5S 1A1, or telephone 978-2139 . . . And if you have moved recently, or are about to move, don't forget to send your change of address.

The weather was wonderful and so was the ambience at June reunion. Some very interesting people were there . . . For instance, Sydney Henry Gould, Vic 2T9, a renaissance kind of man who had more than the usual answer to "What have you been doing since graduation? . . . He graduated in and taught classics at U of T for 10 years; changed fields, took a PhD in mathematics, went to Russia after the war, learned Russian and became a translator of mathematical papers. At 65, he was invited by the government of Taiwan to do mathematical research and translation there so he learned Chinese. On leave at Brown University at the moment, he plans to go back to Taiwan to continue his unusual career . . . More homely was the family reunion at the President's garden party of Judge Jack Robinson and sisters, Nonie Taylor and Barb Brooks, who graduated respectively 50, 40 and 25 years ago . . . Sign of the times was the number of graduates from 60 years ago.

A new idea percolating along with the coffee at Alumni House is an alumni college summer program. This "college" would combine a non-credit liberal arts program with residential,



Jim Ham beats a big bass drum at the President's spring reunion garden party

DAVID LLOYD

social and athletics facilities on the campus. Residence would be optional so that commuters could participate. All for a reasonable fee, of course. The "college" would open in the summer of 1980. What do you think of the idea? Opinions and comments on the proposed alumni college, preferably by mail, are welcomed by Bill Gleberzon, Department of Alumni Affairs.

Need a little accounting under your belt? Or have you a fondness for French and the time now to study it? Woodsworth College offers all the degree courses in the arts and science calendar to you as a special student. Special students usually take one course, daytimes or evenings, but do not take a degree. This is not to be confused with the School of Continuing Studies which offers a variety of non-credit courses mostly in the evenings . . . As well, Woodsworth offers certificate courses in business, criminology, personnel and industrial relations, public administration, teaching English as a second language, and operation research. These courses are usually taken part-time over two or three years.

Want to know more? Calendar and counselling to help you select your course are at Woodsworth College, 119 St. George St. It's too late for the fall term, winter deadline is Nov. 30.

It's not too late to register for either or both of the fall series sponsored by the Senior Alumni . . . Canadian Perspectives — lectures by top academics generally on themes that were not major areas of study when most of us went to school; Preparation for Retirement Living — talks giving some ideas for adding variety to life in those years. For details, see page 28.

The visitors' program sponsored by the SGS Alumni Association is now in its second year. Peter White of the

association and graduate school describes the program as being designed to bring to U of T people of high calibre in fields of research of interest to other areas so that their visits provide a stimulus for inter-disciplinary discussion.

Although the program is designed principally for graduate students and researchers, the lectures will be open to the public . . . and will cover a wide range. Professor Gene Likens of Cornell, the "acid rain" ecologist who drew the attention of the world to the increasingly acid nature of our water, will visit in October. Professor Amos Tversky of Stanford, one of the world's foremost mathematical psychologists, will discuss his specialty, decision-making processes, when he visits in November. The February visitor will be Dr. James Watson who, with Francis Crick and Maurice Wilkins in Cambridge, won the 1962 Nobel Prize in Medicine for the discovery of the molecular structure of the DNA molecule (*The Double Helix*). Dr. Watson will speak on aspects of recombinant DNA.

Ottawa branch president John Crysedale represented the U of T at the installation of the new president of Carleton and the past president of the Vancouver branch, Mrs. J.E. Nixon, represented the University at the installation of the new president of Simon Fraser, both at the request of President Ham who was unable to attend these ceremonies.

Doug Appleton, new president of the U of T Alumni Association, can now practise what he teaches as a faculty member at Humber College — organizational development. This is a new career for Doug, a Trinity grad, B.Com. 4T8, following five years active service as a navigator in the RCAF during World War II. After



Doug Appleton

28 years in business, he went back to university, took an MBA at McMaster and went into teaching. Active in alumni affairs since 1968, he has been chairman of Trinity Convocation, chairman of the U of T College of Electors, and has served as a director and member of the executive of UTAA since 1973.

He has a strong executive to assist him, including vice-presidents Ed Kerwin of St. Mike's and George Edmonds of Vic, both lawyers, and Doug Thomas of Vic, research director at the Canadian Institute of Chartered Accountants. Other officers include Pat Sadleir, nursing administrator at Sunnybrook Medical Centre; Doug Kingsbury, UC, retired Imperial Oil executive, president of the United Church Toronto Conference; and James Joyce, UC, chairman and chief executive officer of the Ontario Development Corp.

The UTAA, umbrella organization for the 30 alumni associations, concerns itself with all-University alumni affairs such as election of

UNCLAIMED DIPLOMAS

If one of the many unclaimed November/December 1977 diplomas in U of T's office of Student Record Services is yours, why not pick it up or have it sent to you by registered mail?

In the first case, you'll need identification; should you send someone in your stead, a signed authorization letter will be required.

In the second case, write to: Diplomas, Student Record Services, 167 College Street, University of Toronto, Toronto, Ontario M5S 1A1.

Enclose a cheque or money order

(no cash, please) for \$4.50 and provide all of the following information, typewritten or printed: your graduation name; address; date of convocation; degree; faculty or school, and college if applicable; student number. If your name has changed since graduation, please provide some proof of your former name.

All November/December 1977 diplomas not picked up will be destroyed on December 1, 1979. A replacement fee, currently \$25, will be assessed any graduate who wishes to obtain a diploma after that date.

governors and Chancellor, Varsity Fund and spring reunion. Its president is symbolic head of the 180,000 alumni of the University. He installs the Chancellor and represents alumni at such events as the installation of a new President.

Books, books and more books . . . Did you know that the U of T library has the tenth largest number of books in North American universities and that as an alumnus you can take out a card at a discount? . . . Books have been pouring in for the UC and Trinity book sales. UC profits will go to increase funding for the Alexander lecture series. Trinity profits go to the Trinity library . . . And lest we forget what fortunate lives we've had, we print a

request from Frontier College. Books and non-books are needed . . . old pocketbooks, magazines such as *Sports Illustrated*, science fiction, westerns, comics, for use in the college's work in the isolated work camps and native communities across Canada. Take your magazines to Frontier College, 31 Jackes Ave., Toronto, telephone 923-3591.

We've heard from St. Mike's that the students there, when warned of serious cuts in funds to purchase books for the college library, have begun an "Adopt a Book" campaign. This will be a campaign for voluntary contributions from students but already the students are looking for outside incentives with which to challenge their fellow students, matching grants and such like.

A trust fund in Father John Kelly's name has been established at St. Mike's with funds raised through the generosity of alumni, faculty and friends of the college at the time of his retirement from the presidency last year. A testimonial dinner marking his half century of service to the college was attended by more than 1,500 people. The fund will support a lecture in his name to be given annually by renowned theologians and philosophers. The first Kelly Theology Lecture will be given this November.

Are there any alumni who would be willing to put up a high school student from out of town for a night, the Department of Admissions wonders? During the fall and winter, a number of students write saying they are coming to look over U of T and ask for accommodation. As the residences are full, alumni in the Toronto area could help out by providing digs. You would not be asked often. Write the secondary school liaison office at admissions or phone 978-2771.

As more and more people come to the University . . . use the new athletics building and other campus facilities . . . you will want a U of T Alumni I.D. card to prove you are who you are for the alumni discounts at the library, Hart House, et al. They are available from Alumni House, 47 Willcocks St., for \$1.

C. William Daniel, president and chief executive officer of Shell Canada Ltd., was the 1979 McParland lecturer. The 4T7 mining engineer chose as his topic Canada's energy options. This annual lecture is supported by a trust fund given by Brinco Ltd. in honour of Donald J. McParland, a graduate of engineering who was president of Brinco and Churchill Falls (Labrador) Corp Ltd., killed in a plane crash in 1969.

In Soldiers' Tower is the Muniment Room, grave and touching place of the University's war memories including one of the two guns captured at Vimy Ridge by Major Thorn MacDowell, V.C. A display case given by the engineers of 2T3 holds the Victoria Cross and other campaign medals from the Boer War. The hope is eventually to have one of each medal conferred on students or alumni since the establishment of the University, i.e. since the Crimean War. If you would like to donate or lend a decoration, contact the director of Alumni Affairs, E.B.M. Pinnington, 978-2365.

SENIOR ALUMNI LECTURES

Preparation for Retirement Living.

Senior Alumni series of seven talks on Tuesday evenings provided to offer some ideas for increasing the enjoyment of retirement.

Oct. 9,

The challenge of aging and retirement. Dr. Blossom T. Wigdor, Program on Gerontology.

Oct. 16,

Making the most of your retirement income. W.G. Upshall, investment counsellor.

Oct. 23,

Aids to health in retirement. Dr. Rory Fisher, Sunnybrook Hospital.

Oct. 30,

Available options in living arrangements. John Moses, real estate specialist.

Nov. 6,

Aspects of the law of interest to seniors. W. Allan Campbell, Q.C.

Nov. 13,

The community resources available to seniors in Metropolitan Toronto. Beverley Wybrow, Metro Community Information Services.

Nov. 20,

Increasing the enjoyment of leisure time. Morley Zurbrigg, Committee on Aging, Ontario Welfare Council; Allan Upshall, Ontario Advisory Council on Senior Citizens and co-ordinator of this series.

162 St. George St. 7.45 to 9.30 p.m. Fee for series, \$12.

Information and registration, 978-8991. Please note enrolment is limited.

Canadian Perspectives.

Senior Alumni informal academically oriented lecture and discussion series on Wednesday mornings.

Oct. 3,

King Tut. Terry Miosi, School of Continuing Studies.

Oct. 10,

National Unity: The View from Quebec. Prof. B.Z. Shek, Department of French, University College.

Oct. 17,

Computers and Society. Prof. C.C. Gotlieb, Department of Computer Science.

Oct. 24,

The New Gerontology Program at U of T. Dr. B.T. Wigdor, Program on Gerontology.

Oct. 31,

Nuclear Power. Prof. D.A.L. Paul, Department of Physics.

Nov. 7,

Canadian Sports. Prof. Bruce Kidd, School of Physical & Health Education.

Nov. 14,

Black Holes. Prof. C.T. Bolton, Department of Astronomy.

Nov. 21,

Science Fiction. Prof. Peter Fitting, St. Michael's College.

Nov. 28,

Man's Impact on Climate. Prof. R.E. Munn, Institute for Environmental Studies.

Media Room 179 University College. 9.30 a.m. to 12 noon. Fee for series, \$21 per person, \$36 per couple.

Information and registration, 978-8991. Please note enrolment is limited.

\$25 MILLION GOES TO WORK

The Update campaign, launched in April 1976 to raise \$25 million in five years, has now, three years later and two years ahead of schedule raised \$25 million in cash and pledges.

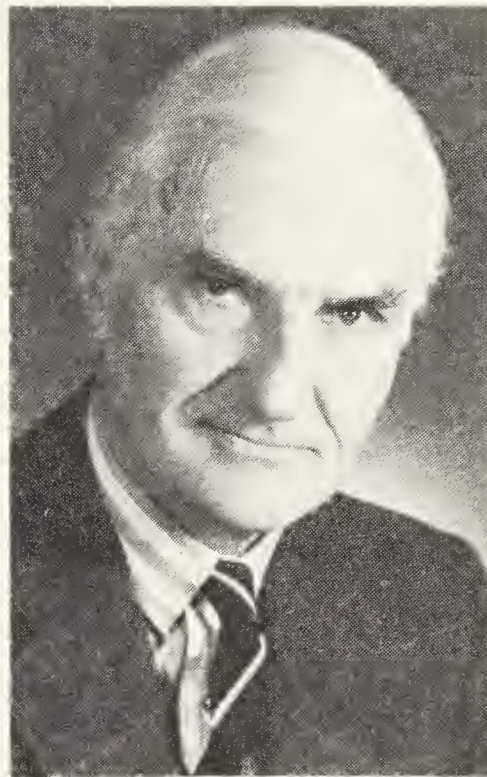
"The success resulted from the superb leadership of Update's managing chairman, St. Clair Balfour, and his team of volunteers who have presented, in a most effective way, the University's needs," says President James Ham. "It is an impressive achievement, but even more impressive is the impact which the fund is having and will have on the fabric of the University."

Update projects touch almost every facet of University life, from capital construction to basic research and scholarship.

Now that the original target has been reached, Update is beginning its second phase. Its target? \$5 million a year. Update's importance to the quality of life at U of T is expected to continue well into the future. In the face of public fiscal restraints, sustained private support will be needed. Many donors, both corporate and individual, have recognized this and responded with multi-year pledges. Others have asked to be approached with new projects on an annual basis.

The Presidents' Committee will be working to increase the number of major donors to the University. Chairman of the group is C. Malim Harding, first chairman of the Governing Council; members of the executive are Ralph M. Barford, A.J.E. Child, William A. Farlinger, J. Peter Gordon, Professor V.E. Graham, Professor F.K. Hare, William B. Harris, Mary G. Heintzman and Harold J. Murphy, with St. Clair Balfour, President Ham and C. Warren Goldring, chairman of the Varsity Fund, ex officio.

The hundreds of volunteers working for Update will continue their efforts. Update funding has been used for restoration of University College and building the George Ignatieff Theatre at Trinity... for expansion of book collections on all three campuses... for the industrial relations program, the Northrop Frye Chair in comparative literature, programs in law and economics, human nutrition, gerontology, and the chair in energy studies. Update funding for the future? Many of our buildings are old and in need of repair... books throwing new light on old subjects are published every year... teaching and research are never-ending activities



St. Clair Balfour

that benefit everyone.

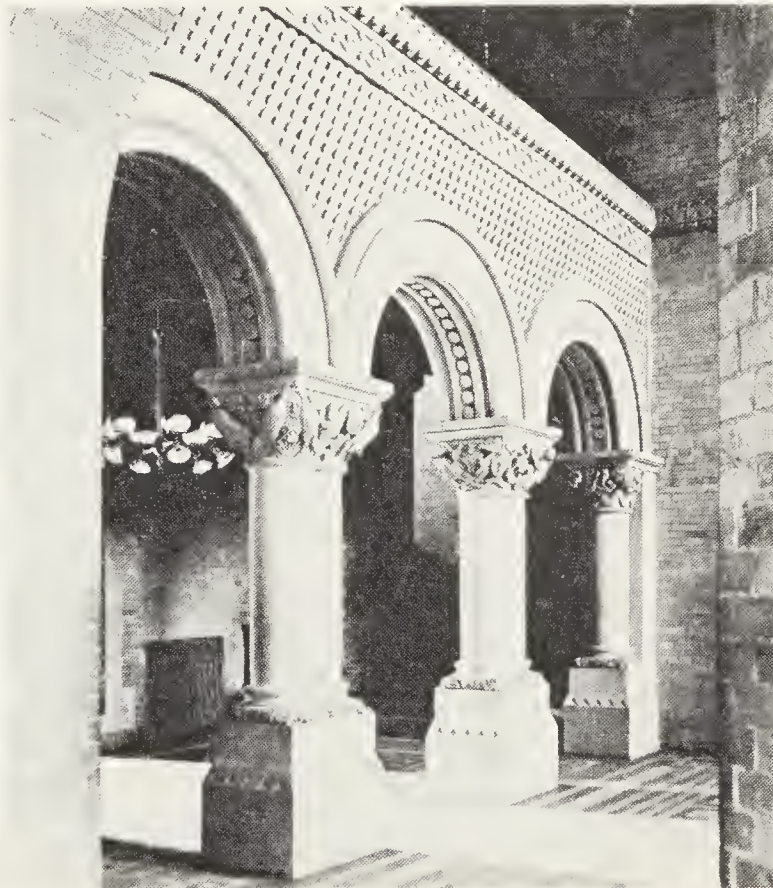
And so, with the first phase successfully completed, the second phase begins. "The challenge now is to build on this success," says the President. "Given the response achieved by Update organization and leadership, there should be no difficulty in maintaining a funding level of \$5 million a year from private sources."

—J.S.

Outside Croft Chapter House, inside University College



ROBERT LANSDALE





Sports/Milt Dunnell

BEST GAME IN TOWN

Warren Stevens, wherever you are, you'd love what's happening at the university which you helped to make feared — yes feared — but also honoured and respected in the sports venues across your adopted country.

The birth of the Blues is happening all over again, Steve—the football Blues, the hockey Blues, the basketball Blues. They're coming back in the surge of pride that has been generated by the beautiful new building that bears your name.

It's the Warren Stevens Building, focal point of a multi-million dollar centre—one of the most modern athletics facilities in the nation.

This is for everybody—not just the team athlete. It's for the swimmers, the squash players, the track and field enthusiasts, the joggers. No longer can the complaint be made that college sports are the monopoly of the Saturday afternoon jocks.

This is a participants' palace.

That it is long overdue has been a sad joke for generations of students and an embarrassed faculty. Hart House, that was built in 1919, has been the most modern facility for men. For the women, there was a new building in the 60s.

But it is not the steel, chrome and concrete that would impress you most, Steve. It's the revival of interest and pride in the University's athletes.

U of T never has been a factory for any sport. The day never would come when a quarterback could major in basket weaving. That never will happen. Nobody wants it.

But it has been a tragedy the way college sports have skidded in public esteem during the past decade. Almost forgotten are the Saturday afternoons when a ticket to Western versus U of T was almost as impossible as a Grey Cup ticket.

Would you believe that last year—when the football team observed the 101st season of the sport at the school—attendance was down to approximately 2,500 per game?

The Blues hockey team consistently has been one of the finest in the country, nine times national champions, three times runners-up. Except when they play arch-rival York, attendance usually is in the hundreds.

The old huckster's creed that everybody will buy a winner just hasn't been true at U of T. One might even be inclined to guess the school grew weary of winners: the men's swimming team, going for its 20th straight Ontario title; the women's swimming team, defending a national title; the women's field hockey team, undefeated in league play for 19 years.

Winning can become a bore. But that is not the answer. The malaise in college sports stems from indifference. Instead of merchandising what they have to sell—some of the most exciting sports action in the country—the colleges have excoriated the professionals for stealing their spectators away from them. They have lost faith in their own operations.

The most exciting football in town for the past several years has been at

Varsity Stadium. Hundreds turned out there—while thousands poured into Exhibition Stadium to watch the Argonauts who have been a perennial embarrassment.

It would be interesting to know how many of those Argonaut ticket holders are U of T alumni. The University has 180,000 alumni, of whom 100,000 are within the Metropolitan Toronto area.

Add a student body of about 45,000 and try to imagine the possibilities if the alumni and the students would get sufficiently involved to attend one football game, or hockey game, or basketball game, or swimming meet.

It wouldn't be long before the general public would be begging students and alumni to get them on the waiting list for season tickets. That can't be accomplished overnight — but it's going to happen.

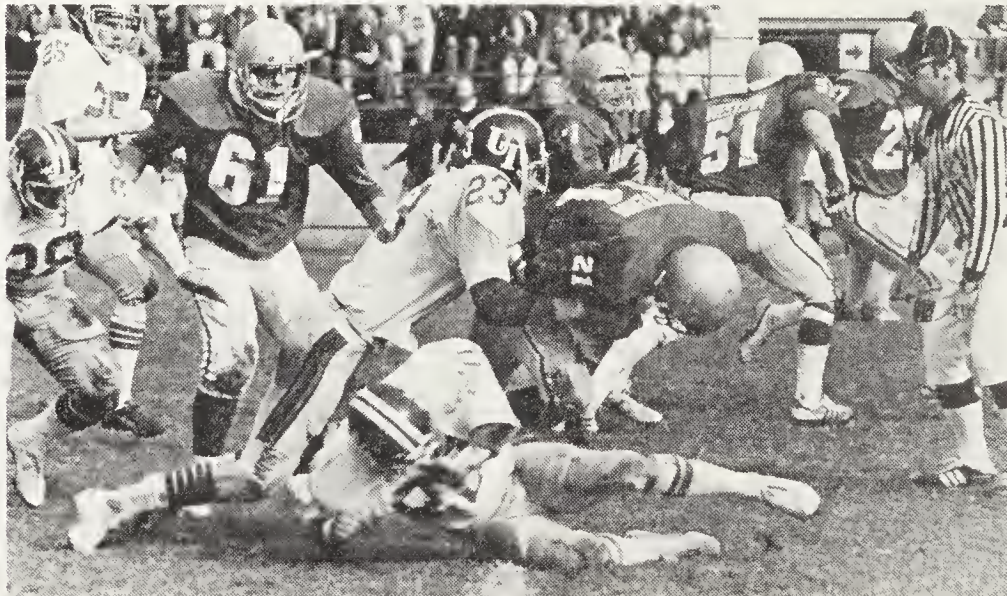
There's an awakening of enthusiasm for the University teams. Students' councils report positive reaction to the sale of tickets. Football players are getting on the phone to former football players. Come out and see a game.

Those squash courts in the new building are available to the alumni along with the Hart House facilities. Membership for alumni is a steal at \$150. In appreciation, an old grad scarcely would turn down a bid to buy a football, basketball or hockey ticket.

The very worst impression the University could create is that attendance and involvement in the various athletic affairs is an obligation. There's no enthusiasm in obligations.

College sports are the biggest bargain on the board today. For as little as \$16 you can get season tickets to four football games. And the games will be on Friday nights so you don't even have to bypass the pros.

All signals are go, Steve. And the best part of it is that the vendors of this exciting package of Blues sports goodies accept their responsibility, too. If you're going to compete with the pros, you must do a professional job of packaging and promoting. That's what they're doing.



SPORTSWEET

NUCLEAR SAFETY AND A STRING QUARTET

LECTURES

Management Studies Speaker Evening.

Thursday, Oct. 11.

What Price Nuclear Safety? Robert Wilson, Ontario Hydro. Seventh floor, Faculty of Management Studies. 7.30 p.m.

Information, 978-8990

Family Fitness.

Thursday, Oct. 11.

Dr. Robert Goode, Department of Physiology; third annual visiting professorship, physio and occupational therapy. Osler Hall, Academy of Medicine, 288 Bloor St. W. 8 p.m.

Information, 978-8990

Analogs and Alternatives: The Confluence of Nutrition and Food Science.

Friday, Oct. 19.

Prof. Aaron M. Altschul, Georgetown University; 1979 Edna Park Lecture, household science. Auditorium, Medical Sciences Building. 8 p.m.

Information, 978-8990.

The Impact of Acid Precipitation on Ecosystems in Eastern North America.

Friday, Oct. 26.

Prof. Gene E. Likens, Cornell University; special guest lecture sponsored by botany and SGS alumni. 3153 Medical Sciences Building. 3.30 p.m.

Information, 978-6515.

Gairdner Lectures.

Thursday, Nov. 1 and Friday, Nov. 2. 1979 Gairdner Foundation

awardees: Dr. James W. Black, University College London; Dr. George F. Cahill, Jr., Harvard Medical School; Dr. Walter Gilbert, Harvard University; Dr. Elwood V. Jensen, University of Chicago; Dr. Fredrick Sanger, University of Cambridge; Dr. Charles R. Scriver, McGill University/Montreal Children's Hospital Research Centre. Auditorium, Medical Sciences Building.

Information, 493-3101 or 978-2021.

Royal Canadian Institute.

Saturday, Nov. 3.

Fall series of lectures will begin Nov. 3. Convocation Hall. 8.15 p.m.

Program details and information: Secretary, Royal Canadian Institute, 191

College St., Toronto M5T 1P9; 979-2004.

The Family.

Thursdays, Nov. 8, 15 and 22.

Series sponsored by Associates of Erindale.

Nov. 8, emotional development of children, Dr. Molly Bloom, Hamilton.

Nov. 15, the working parent, Prof. Ben Schlesinger, Faculty of Social Work.

Nov. 22, the family, Profs. Beryl and Noam Chernick, University of Western Ontario.

2074 South Building, Erindale College. 7.30 p.m. Tickets series \$7.50, individual \$3.

Information, 828-5214.

Sophie Boyd Memorial Lecture.

Thursday, Nov. 8.

Prof. Carlton Williams, Committee on Freedom of Information and Individual Privacy, will give annual social work lecture. Education Centre, 155 College St. 8 p.m.

Information, 978-8990.

Jacob Bronowski Lecture.

Thursday, Nov. 8.

Prof. Richard Dawkins, New College, Oxford University, author of "The Selfish Gene". Wetmore Hall, New College.

Information, 978-2461.

Keys Memorial Lecture.

Tuesday, Nov. 13.

Dean Robert J. Uffen, Faculty of Applied Science, Queen's University. George Ignatieff Theatre. 4.30 p.m.

Information, 978-2651

Decision Processes.

Thursday, Nov. 29.

Prof. Amos Tversky, Stanford University, will talk on his work in this area; special guest lecture sponsored by psychology and SGS alumni.

Information, 978-3407.

Management Studies Speaker Evening.

Thursday, Nov. 29.

Dr. Robert Elgie, MPP, Minister of Labour, Ontario. Seventh floor, Faculty of Management Studies. 7.30 p.m.

Information, 978-8990

CONCERTS

U of T Symphony Orchestra.

Saturday, Oct. 13.

Victor Feldbrill, conductor, program includes Beethoven, Symphony No. 5. MacMillan Theatre, Edward Johnson Building. 8 p.m. Tickets \$3, students and senior citizens \$1.50.

U of T Wind Symphony.

Sunday Oct. 14.

Ronald Chandler, conductor, program of works by Hindemith, Chance, Morawetz and Walton. MacMillan Theatre, Edward Johnson Building. 3 p.m.

Stephen Savage, Piano.

Wednesday, Oct. 17.

Program will include works by Beethoven and new works by Tippett and Smalley. Walter Hall, Edward Johnson Building. 8 p.m.

Thursday Afternoon Series.

Oct. 18,

Informal talk on Canadian music, prepared and presented by Prof. John Beckwith in connection with 20th anniversary of Canadian Music Centre.

Oct. 25,

Lecture: Alban Berg's "New Lulu" —the sensation of today's operatic world. Prof. Talivaldis Kenins, Faculty of Music.

Nov. 8,

Lecture: New concepts in music education. Prof. Ronald Senator, University of London.

Nov. 15,

Recital: Faculty of Music Jazz Ensemble, directed by Phil Nimmons and David Elliott.

Nov. 22,

Recital: Compositions by students.

Dec. 6,

"The Christmas Story" by Carl Orff, directed by Doreen Hall. Walter Hall, Edward Johnson Building. 2.10 p.m.

Faculty Artists Series.

Saturday, Nov. 3.

Concerto program: Victor Feldbrill, conductor; Melvin Berman, oboe; William Aide, piano; Vladimir Orloff, cello; Anton Kuerti, Patricia Parr and Jane Coop, pianos. Walter Hall, Edward Johnson Building. 8 p.m. Single tickets \$5, students and senior citizens \$2.

Orford Quartet*Sunday, Nov. 4*

U of T quartet-in-residence in program of works by Mozart, Prokofiev and Beethoven. Walter Hall, Edward Johnson Building. 8 p.m. Tickets \$6, students and senior citizens \$3.

U of T Concert Choir*Sunday, Nov. 18.*

Charles W. Heffernan, conductor, program includes works by Bach and Respighi. Walter Hall, Edward Johnson Building. 3 p.m.

University Singers.*Tuesday, Nov. 27.*

William R. Wright, conductor, program of works by Handel and Bach. Trinity College Chapel. 8 p.m.

U of T Concert Band*Sunday, Dec. 2.*

Stephen Chenette, conductor, program includes new works by Coakley and Polgar. MacMillan Theatre, Edward Johnson Building. 3 p.m.

Dvorak Festival.*Monday, Dec. 3.*

First of seven special concerts, presented in co-operation with CBC Radio, devoted to music of Czech composer, featuring internationally acclaimed performers.

Program 1: Orford Quartet and Joel Quarrington, double bass. MacMillan Theatre, Edward Johnson Building. 8 p.m. Tickets: series \$30, students and senior citizens \$15; single tickets \$6, students and senior citizens \$3. Deadline for series orders Nov. 2

Information on all concerts listed above available from box office, Edward Johnson Building, 978-3744.

PLAYS & OPERAS**Hart House Theatre.***Oct. 10 to 13 and 17 to 20.*

"Jumpers" by Tom Stoppard, first Toronto production of comedy, set in a university, about dilemmas faced by professor of moral philosophy.

First of three productions in Graduate Centre for the Study of Drama 1980 season at Hart House Theatre. *Nov. 21 to 24 and 28 to 30, Dec. 1.*

"Last Summer in Chulimsk" by Alexander Vampilov, first North American production of play by young Soviet dramatist described by European critics as most Chekhovian talent to emerge in Russia since the Revolution. Second of three productions for 1980 season.

Performances at 8 p.m. Tickets: season subscription \$12, students \$6; single tickets \$5, students \$2.50.

Information, 978-8668.

Glen Morris Studio Theatre.*Oct. 31, Nov. 1 to 3 and 7 to 10.*

"Walsh" by Sharon Pollock about tug of war between Canada and the US over return of Sitting Bull from exile after Custer's massacre. First of five productions in Drama Centre 1980 season at Studio Theatre.

Dec. 5 to 8 and 12 to 15.

"Box and Cox" and "More Sinned Against Than Sinning", Victorian doublebill of J. Maddison Morton's farce and an early Canadian melodrama set in Ireland during days of the Fenians. Second of five productions for 1980 season.

Performances at 8 p.m. Admission \$1.

Information, 978-8668.

MacMillan Theatre.*Nov. 9, 10, 16 and 17.*

"L'Enfant Prodigue" by Claude Debussy based on parable of the prodigal son;

"Gianni Schicchi" by Giacomo Puccini, comedy attacking greed, crocodile tears and sheer roguery. First productions by Opera Department, Faculty of Music, for 1980 season.

Performances at 8.15 p.m. Tickets \$4.50, students and senior citizens \$2.50.

Information, 978-3744.

EXHIBITIONS**Erindale College Art Gallery***Oct. 1 to 22.*

Prints by Ruth Tulving, RCA, and Otis Tamasauskas.

Nov. 5 to 30.

Paintings by Nancy Hazelgrove.

Gallery hours: Monday-Friday 10 a.m. to 9 p.m.; Saturday-Sunday, 2 to 5 p.m.

Information, 828-5214.

Royal Ontario Museum.*To Nov. 18.*

The Artists' Niagara: A Visual Account of the Falls from the 1690s to the 1890s.

Sigmund Samuel Canadiana Building. Gallery hours: Monday-Saturday, 10 a.m. to 5 p.m.; Sunday, 1 to 5 p.m.

COURSES & WORKSHOPS**Botanical and landscape drawing and painting on the Bruce Peninsula.***Oct. 14 to 21.*

Intensive residential program will give instruction and experience in drawing and painting varied plants and landscapes of the Bruce Peninsula. Instructor: Homer Moelchert, artist and horticulturalist.

One-day French language course for travellers.*Sept. 29 and Dec. 1.*

Refresher course, for students with some background in French, designed to answer travellers' needs.

Teaching thinking.*Nov. 10.*

Workshop led by Edward de Bono in the teaching of thinking as a skill.

Information about these and other courses: School of Continuing Studies, 158 St. George St., Toronto M5S 2V8; telephone, 978-2400.

SPORTS**Football.***Friday, Sept. 21.*

Blues vs Guelph. 7 p.m.

Friday, Sept. 28.

Blues vs Western. 7 p.m.

Thursday, Oct. 4.

Blues vs York. 7 p.m.

Friday, Oct. 12.

Blues vs Laurier. 7 p.m.

Saturdays, Oct. 27 and Nov. 3.

Playoffs.

Saturday, Nov. 17.

Canadian College Bowl. 1 p.m.

All games in Varsity Stadium.

Soccer.*Saturday, Oct. 6.*

Blues vs Waterloo. 1 p.m.

Saturday, Oct. 13.

Blues vs Guelph. 1 p.m.

Saturday, Oct. 20.

Blues vs York. 1 p.m.

Wednesday, Oct. 31.

Playoffs.

Saturday, Nov. 3.

Championship game.

All games in Varsity Stadium.

Hockey.*Friday, Oct. 19 and Saturday, Oct. 20.*

U of T tournament: Toronto, York, McMaster, Concordia. 6 and 9 p.m. both days.

Friday, Nov. 9.

Blues vs Queen's. 7 p.m.

Friday, Nov. 16.

Blues vs Laurentian. 7 p.m.

Wednesday, Nov. 21.

Blues vs York. 7 p.m.

Friday, Nov. 30.

Blues vs Brock. 7 p.m.

All games in Varsity Arena.

Swimming and Diving.*Saturday, Oct. 27.*

Men's and women's alumni swimming teams. First meet in new Athletics Centre pool. 7.15 p.m.

Basketball.*Tuesday, Nov. 20.*

Men's Blues vs Oakland, Michigan (exhibition game) 8.15 p.m.

Friday, Nov. 23.

Ladies' Blues vs Laurentian.
7.30 p.m.

Saturday, Nov. 24.

Ladies' Blues vs Waterloo. 2.15 p.m.

Wednesday, Nov. 28.

Men's Blues vs McMaster (exhibition game) 8.15 p.m.

All games in Benson Sports Gym.

Information, including tickets and prices, about these and other sports events: Department of Athletics and Recreation, 978-3437 or 978-4112.

MISCELLANY

Festival of Flowers.

Friday, Sept. 28 to Sunday, Sept. 30. Chapels of Emmanuel, Knox, Trinity, Wycliffe, Hart House and Newman Centre will be decorated by Garden Club of Toronto and open to the public during the day and in the evenings; opening ceremonies will be held in the chapels on Thursday evening at 7.30 p.m.

Information, 978-2021.

Installation of Provost.

Thursday, Oct. 11.

Installation of Prof. F. Kenneth Hare as provost and vice-chancellor of Trinity College. Convocation Hall. 8 p.m.

Information, 978-2651.

Homecoming at St. Mike's.

Friday, Oct. 12 to Sunday, Oct. 14. Rejuvenation for all but featuring 20th, 15th, 10th and 5th years. Annual Boozier Brown football game on Saturday at 12 noon.

Information: Alumni Office, St. Michael's College, 921-3151.

Pontifical Institute of Mediaeval Studies.

Saturday, Oct. 20.

Celebration of 50th anniversary. Symposium on the history of the development of mediaeval studies will be held. Convocation at which, for first time, honorary degrees will be awarded. Honorary graduands: Marie-Thérèse d'Alverny, Paris; Bertie Wilkinson, Toronto; Rev. J. Reginald O'Donnell, CSB, Toronto; and Gerhart Ladner, Los Angeles, who will give Convocation address on the future of mediaeval studies.

Scarborough Alumni Association.

Saturday, Oct. 20 and Sunday, Oct. 21.

Association is planning week-end at Deerhurst Inn, Huntsville.

Information: Alumni Office, Scarborough College, 284-3243.

Book Sale.

Thursday, Oct. 25 and Friday, Oct. 26.

Friends of the Library, Trinity College, annual book sale. Seeley Hall.

Information and book pick-up: Office of Convocation, 978-2651; or Helen Bradfield, 489-1959.

Rummage Sale.

November.

Sponsored by New College Alumni Association to raise money for scholarships. All contributions welcome; these may be brought to porter's office in Wetmore Hall.

Information, 978-2461.

Faculty of Music Alumni.

Sunday, Nov. 4.

Reception following concert by Orford Quartet.

Information: Aynslee Morrow, 489-9167; or Marianna Zonena, 535-2221.

UC Bookfair.

Monday, Nov. 5 and Tuesday, Nov. 6.

University College Alumni Association will hold what is hoped will become an annual event to raise money for various college projects. West Hall.

Information, 978-8746 or 978-8601.

Varsity Fund Telethon.

Monday, Nov. 5 to Wednesday, Nov. 7.

Calgary branch of U of T Alumni Association will hold telethon, evenings of Nov. 5, 6 and 7. Volunteers needed to act as telephoners.

Information: Dr. Kenneth M. Glazier, 2936 University Place NW, Calgary T2N 4H5; telephone 282-0118.

George Ignatieff Theatre.

Thursday, Nov. 8.

Official opening of the new theatre at Trinity College.

Information: Margaret Grisdale, 978-2370.

Service of Remembrance.

Sunday, Nov. 11.

Soldiers' Tower. 11 a.m.

Ethical and Legal Aspects of Perinatal Medicine.

Saturday, Nov. 17.

Symposium sponsored by St. Michael's College in conjunction with Catholic Doctors' Guild of Toronto and open to members of the health professions and medical students. Recent developments in life sciences and medicine, as well as changes in the law, have posed many serious ethical problems surrounding threshold of birth. Principal topics to be discussed by speakers from fields of medicine, philosophy, theology and law will include abortion, prenatal diagnosis, allowing new-born to die and fetal experimentation.

Brennan Hall, St. Michael's College.

Information: Alumni Office, St.

Michael's College, 921-3151.

Santa Claus Parade Party.

Sunday, Nov. 18.

Victoria College.

Information, 978-3813.

Convocations.

Friday, Nov. 23.

Meeting Place, South Building, Erindale College. 8 p.m.

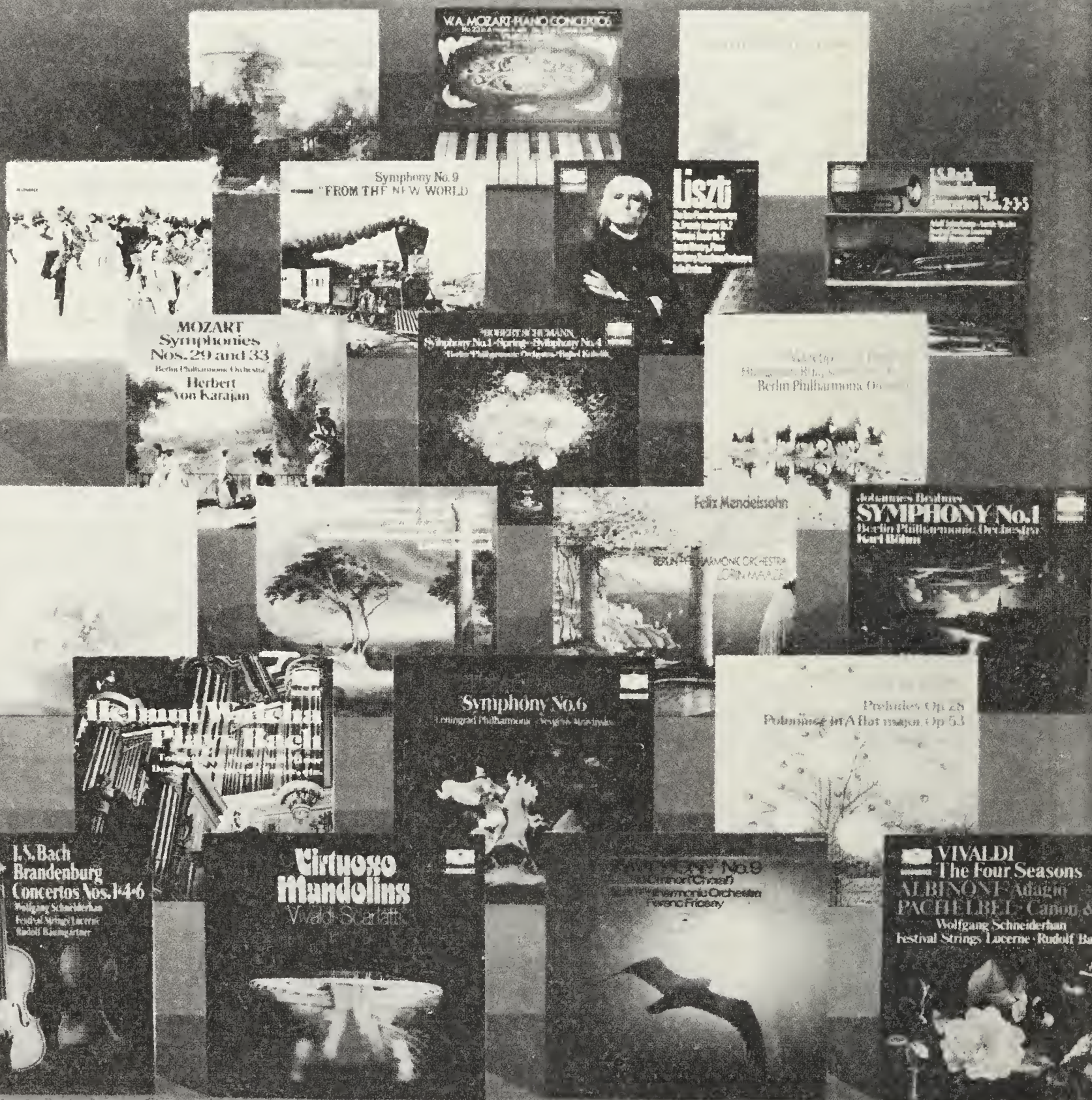
Wednesday, Nov. 28, Thursday, Nov. 29 and Friday, Nov. 30.

Professor Stillman Drake, honorary graduand, Nov. 30, will give Convocation address.

Convocation Hall. 8.15 p.m.



The details given were those available at the time of going to press. However, in case of later changes in programs, readers are advised to check with the information telephone numbers given in the listings. If you wish to write, mail to the University should be addressed to the department concerned, University of Toronto, Toronto M5A 1A1, unless otherwise indicated.



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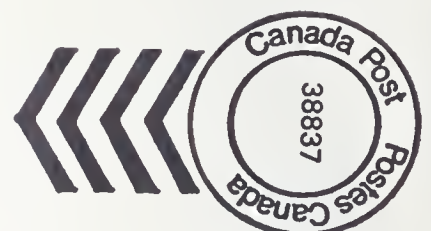
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The SKILLS LADDER is a kit of 200 colorfully illustrated Activities Cards divided into 7 units. The first 2 units include counting, writing, adding and subtracting numbers up to 10. The other 5 units expand these activities for numbers up to 100. Also included are simple concepts of geometry, measuring, telling time, and counting money.

A child's attention is maintained by cleverly drawn animals and objects and a variety of fun-to-do exercises.

Even youngsters just beginning to read can do the exercises and check on answers themselves. Only an occasional bit of guidance

and encouragement is required on your part to keep your child involved and motivated from beginning to end of the Program.

When you order the Math Skills Ladder you'll receive a special **Starter Kit** to assist you to organize your children's play-learn sessions.

The Starter Kit includes . . .

- **Parent's Guide** with helpful ideas for getting the most out of the program.
- **30 Activities Cards**, covering basic addition, subtraction, counting and writing numbers.
- **Storage Case**, with 7 section dividers, to organize all Cards.
- **Reusable Plastic Overlay** for recording and checking answers, plus 2 special Markers.

Two ways to pay. You may pay for the complete 7 kit programme in three equal payments of \$19.95 on your Master Charge or Visa Account (Kits sent in 3 shipments) or You may save **10%** by making one single payment of \$53.95 on your Visa or Master Charge Account (kits sent in one shipment) \$7.95. **Either way, you have a complete 15 day Money Back Guarantee** if you are dissatisfied for any reason.

Free EXAMINATION CERTIFICATE

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You may send the Skills Ladder for Basic Math Starter Kit on a 15-DAY FREE EXAMINATION basis without obligation. If not completely satisfied, I may return the Kit after 15 days and owe nothing. Or if I decide to keep the Starter Kit, I may do so for the price of \$7.95 plus shipping and handling. Then, each month for 6 months, my child will receive an additional unit with 25 to 35 Activities Cards, for only \$7.95 per section plus shipping and handling. However, I am not obligated to make a minimum purchase once I accept the Starter Kit, and I may cancel my participation at any time.

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